EDUCATION

DEVOTED TO THE SCIENCE, ART, PHILOSOPHY, AND LITERATURE OF EDUCATION.

VOL. VIII. SEPTEMBER, 1887. NO. 1.

THE AIR-SUPPLY OF SCHOOL-ROOMS.[1]

BY SAMUEL W. ABBOTT, M.D., SECRETARY OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

THE object of the present paper is the presentation of certain principles relative to air-supply and the methods of their application, chiefly the former.

Of the population of New Hampshire, 63,000, or about one sixth, were in attendance at public schools in the State during the year 1885, the greater part of which number were between the ages of six and sixteen years.

It is not too much to demand that this army of youth should receive, so far as their physical welfare is concerned, every possible advantage. Neglect of this duty toward the scholar during this most susceptible age of his life is fully as censurable as a like neglect of his mental training.

Both branches of the education of the child should receive equal attention, in order to fulfil every indication in that most excellent maxim, "a sound mind in a sound body."

Too often on entering a school-room do we meet a bright, intelligent teacher, a school eager for instruction, but, on the other hand, a school-room overcrowded, poorly ventilated, or not at all; badly lighted; insufficiently or overheated; with ill-fitting desks and other appliances, a corrupted water-supply, and evidence to

[1] Read at a Sanitary Convention at Manchester, N. H., January, 1887.

DENVER, COL.

the senses, in the school-room itself, of defective drainage or plumbing in some part of the building. It may be that not all the features in this sorry picture are present at the same time, but too often one or more is the rule.

Pure air to breathe, pure water to drink, pure food to eat, and a pure soil to live upon constitute four of the essential conditions of healthy existence. The first only of these conditions, *pure air*, as affecting the health of persons who spend a portion at least of their lives in school, I propose to make the subject of this paper.

1. And first, as to the *quantity* of air essential to health under the conditions named. This embraces the two topics, the amount of air-space essential to health and the amount of fresh, outdoor air to be supplied for each person, per hour or per minute. It is quite clear that these two points have a definite relation to each other, since in any given case, with a definite amount of air-space and a like definite and constant supply, and with a given number of inmates in an apartment, if the cubic air-space is diminished, the air-supply must be increased in order to maintain a like condition of purity of the air of the apartment, the number of inmates remaining the same, and *vice versâ*.

In school-rooms the amount of cubic air-space should be at least 200 cubic feet for each scholar of average age, and more for older pupils.

In an estimate of the amount necessary for school-rooms, allowance may be made for recesses and intermissions and consequent opportunity for entire or partial renewal of air by opening doors and windows.

What amount of fresh air should be supplied to each person per hour or per minute?

Forty feet per minute may be taken as a minimum for adults; some authorities place the required amount as high as sixty feet. For young children, using a smaller amount for respiration, less than either of these amounts is requisite, especially in rooms frequently opened at recesses or intermissions. Two thousand feet per hour for each pupil, except in higher grades of schools, may be deemed sufficient.

Dr. Billings says, in his recent treatise on this subject, that "perfect ventilation can be said to have been secured in an inhabited room, only, when any and every person in that room takes into his lungs, at each respiration, air of the same composition as

that surrounding the building, and no part of which has recently been in his own lungs or in those of his neighbors, or which consists of products of combustion generated in the building, while at the same time he feels no currents, or draughts of air and is perfectly comfortable as to temperature, being neither too hot nor too cold."

2. The *quality of the air necessary for the health of occupants of school-rooms or other apartments.* This topic naturally succeeds that already named, since it furnishes the reason for the change in the air of apartments when occupied. In order to treat this subject intelligently, a brief statement of the composition of the air is here necessary.

Pure outdoor air is composed of 79 parts of nitrogen, 20.96 of oxygen, and .04 of carbonic acid, or carbon dioxide, and also a small amount of watery vapor: —

TIME OF OBSERVATION.	TEMPERATURE CENTIGRADE.		MOISTURE.	
	OUTDOOR AIR.	SCHOOL-ROOM.	OUTDOORS.	SCHOOL-ROOM.
7.40 A.M.	+ 1.5	+ 11.5	98	57
8.55	1.5	16.3	98	65
9.5	—	16	—	67
9.55	1.8	17	99	72
10.8	—	18	—	71
10.55	2.0	19	98	74
11.8	—	18.5	—	75
11.55	2.0	19.5	98	75
12.8 P.M.	—	18.8	—	75
12.55	2.5	19.5	98	76

Of the parties to this mixture the carbonic acid has special importance in connection with the subject of air-supply — not because of actively poisonous qualities, as is the case with carbonic oxide, but because it is an exponent of the respiratory impurity of the air. Other dangerous products of respiration are doubtless evolved at the same time with the carbonic acid, and hence the amount of carbonic acid which is capable of measurement is taken as an expression of the entire product.[2]

There appears to have been a revolution of opinion as to the action of this gas upon the health of those who breathe it, and also as to certain other properties which it possesses.

[2] Billings on Ventilation.

In consequence of its greater weight, it was for a long period taken for granted that carbonic acid would necessarily be found at the bottom of occupied rooms. Actual determinations, however, have shown that this gas, as well as others, is quite equally diffused throughout apartments.

There can be no doubt that the injurious effects of carbonic acid have been overestimated by confounding it with its excessively poisonous namesake, the carbonic oxide (or carbon monoxide), and I am also inclined to the belief that there has been too great a reversion of opinion in the direction of a belief in its harmlessness. The case of workmen in bottling establishments has been cited as an instance of its innocuous qualities, such men being constantly exposed to the liberation of free carbonic acid. In this case, however, there is quite a difference from that of persons exposed to the air of crowded apartments, since the carbonic acid is added to the normal air in the former case, while in the latter it is evolved at the expense of a portion of the oxygen of the room.

Dr. Angus Smith says upon this point that he had always considered carbonic acid as remarkably innocent, in small quantities, and was accustomed to look on the organic substances as the real evils; but his experiments in a tightly closed leaden chamber so far changed his mind that he was inclined to believe that carbonic acid had an injurious influence even in small amounts.[3]

The amount of carbonic acid added to the air of an apartment by an adult is about three fifths of a cubic foot per hour. At this rate one man would add to the air of a tightly closed apartment of 10,000 feet of air-space three cubic feet in five hours, raising the amount present to six or seven parts in 10,000, the exact ratio depending upon the amount previously present. In order, therefore, to reduce this amount to that consistent with health, a renewal of 3,000 cubic feet per hour, or 50 feet per minute, would be required, and this amount would also be necessary for each added occupant.

Dr. Billings estimates twenty-five to thirty cubic feet per head and per minute as sufficient for school children.

A special reason for attention to the *quality* of the air-supply, with reference to its pollution, is the enormous quantity which we use daily.

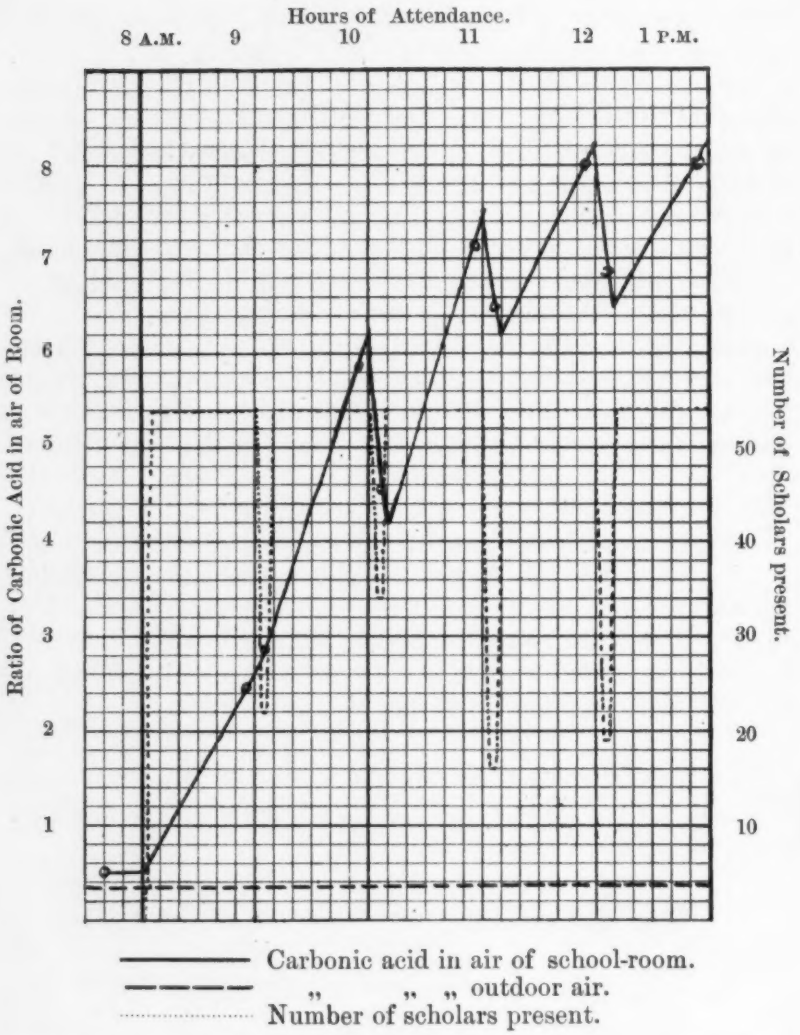
[3] Air and Rain, by Robert Angus Smith, p. 179.

We are wont to consider the quality of a water-supply as a matter of the highest importance to the consumer, and justly so, and also to estimate the impurity of water by the number of grains per gallon, or parts per 100,000; and if we find a minute trace of ammonia or of other impurities, especially in connection with possible causes of pollution, we regard it as a dangerous water; and yet the average daily amount of water drank by each person is but a fraction of a gallon. On the other hand, when we consider the air-supply, we find that each child at school takes into his lungs from 300 to 500 gallons of the air of the school-room in the five hours of his daily attendance. It is therefore a matter of the highest importance that the air should be pure and that the waste products of respiration should be removed as rapidly as possible and replaced by the pure outdoor air.

Combustion, both by fires and for heating, and also by gaslights, lamps, and other similar forms of lighting, has an effect upon the air like to that of respiration, a single gas-burner producing six feet of carbonic acid per hour, which is eight or ten times as much as that produced by one adult. More thorough ventilation is therefore required for occupied apartments at night than by day, unless they are lighted by electric lights.

This diagram represents the ratio of carbonic acid per 1,000 parts of air in an imperfectly ventilated occupied school-room in Berlin during the hours of attendance.

The perpendicular lines represent the time of day in periods of 10 minutes. The black line shows the ratio of carbonic acid present at different periods, determinations being made just before and just after each hour. The heavy dotted line below represents the amount of carbonic acid in the outdoor air at the time of the observations. The light dotted line represents the number of scholars present (figures on right), thus, at 11 A.M. there were present 54 scholars and the amount of carbonic acid present in the air of the room had reached 8.5 per 1,000, that of the outdoor air being less than .4 per 1,000. At ten minutes after 11, after a short recess, in which doors were opened and the number of scholars for the time reduced to 16, the ratio of carbonic acid present was reduced to 6.2 per 1,000 parts.



This diagram from Rietschel's Luftung und Heizung von Schulen illustrates the effect of respiration upon the air of an occupied school-room.

The figures at the right side and the dotted line show the number of scholars present in each hour of the session.

Figures at the top represent the hours.

Figures at left side and the black line show the amount of carbonic acid present from the opening to the close of school, including short recesses.

The dotted line near bottom represents the carbonic acid present in the outdoor air.

Another quality of the air to which a certain amount of sanitary importance has hitherto been attributed is its moisture, and

various devices have been contrived as attachments to heating apparatus for the constant supply of moisture to the air. The actual importance of this quality of the air has undoubtedly been exaggerated. In many elevated regions persons live in a dry atmosphere without ill effects. Disagreeable sensations attributed to dryness of the air are believed to be due to insufficient supply.[4]

The evaporation of water in hot-air furnaces is often a source of great nuisance, in consequence of the organic residue which is usually present in domestic water-supplies, which soon becomes offensive in consequence of its concentration and charring by the process of evaporation.

The provision of an abundant supply of fresh, outdoor air, and the regulation of the temperature at a point not too high, will usually furnish an amount of moisture which is sufficient for health as well as for comfort.

3. *Sources of air-supply.* The proper source is always the outdoor air; and the fresh-air inlets, whether to the air-ducts of furnaces or to the indirect coils of steam apparatus, or directly through the walls of apartments, should not be in the proximity of smoky chimneys, stables, and other generators of noxious odors, and especially should they be removed from the neighborhood of vaults, cesspools, and sewers. Too often have we found schoolhouses arranged with fine, sunny exposure to the southward and at the same time the fresh-air inlets immediately adjoining some malodorous appendages upon the opposite side of the structure. Too often also is the air-supply obtained from the cellar, and in some of the schoolhouses in our largest cities, otherwise well designed, special provision is made in the fresh-air inlets for openings into the basement or cellar and also for closing the outside openings. It is needless to add that the average janitor will invariably use the former instead of the latter. Such a practice is especially objectionable when the water-closets are located in the cellar, a custom which should not be tolerated without absolute perfection as to the character, arrangement, and construction of these fixtures.

Additional security would be provided if it were required that all fresh-air inlet shafts, in passing through cellars or other places where the air is of a doubtful quality, should be made of brick, lined with cement and made thoroughly tight. Wooden shafts in

[4] Billings on Ventilation, p. 62.

such places are constantly liable to shrinkage and consequent leaks, whereby the air of the cellar is drawn into them and thence to the rooms above.

The success of any plan of ventilation must depend very much upon the intelligence and faithful performance of duty on the part of the janitors. Too often are they influenced by a false economy in the use of fuel.

In this connection it should be said that thorough ventilation, especially in cold weather, — that is, an abundant supply of fresh air sufficiently warmed, — cannot be attained without a liberal outlay for fuel. Parsimony and good ventilation are not compatible. Dr. Parkes says that the practical limit of purity of the air will depend on the cost which men are willing to pay for it.

The following extract from *The Sanitary Engineer* of January 29, 1887, is by no means overdrawn: —

Securing the contract for engineering and erecting the apparatus, the writer gave to it earnest study and attention, having constantly in view the results contemplated by the architect; namely, a uniform temperature in all parts of the building and a constant change of air without perceptible draught. These results were obtained, and the official tests on exceptionally cold days were so satisfactory as to elicit from the architect a report to the board which was very flattering to the engineer.

But glory is a perishable article if intrusted to the keeping of the average school janitor. The first appointee of the board was a man possessed of good common sense, for, after wrestling with the problem of ventilation during one season and finding his abilities overrated in the appointment, he resigned and was succeeded by one who had the recommendation of numberless best citizens. He took the position early in the summer and matters ran smoothly with him till cold weather necessitated heat. For the sake of humanity (and the engineer) I sent word to him that it would be my pleasure to explain to him the working of the apparatus or send a man to start it; but he informed me that he had paid his predecessor five dollars to show him about it, and he guessed he could get along. Well, he did get along, and so did the complaints. Meeting him, I inquired how he succeeded.

"All right," he replied; "only send a man to fix one of them things that shuts off the water."

"What do you mean?"

"Why, there is two of 'em on every coil; one is for steam and one is for water, and this one turns round and round, and you might turn on it a week and do no good."

"Oh," I replied, "you mean one of the return valves is out of order; probably the wheel is loose from the stem or the disk is off. I will have it repaired."

Humanity and the engineer suggested that I had better go to the building and investigate matters generally. I found the temperature in the first-story hall about 100 degrees, the heat rushing out through the ventilation registers and the place just fit for an incubator. In fact it did hatch an idea, and that was that the vent shaft was closed, and so I called the janitor and mounted to the tower.

The door leading to the attic was wide open. I said: —

"Mr. Janitor, this should always be kept closed. It weakens the draught in your vent shaft when open."

"I know it," he replied, "but I ain't touched it. It 's just as Dan left it."

Looking further I found one of the dampers closed and the other two partly so. I said: "These dampers should be open when the apparatus is running."

"I know it, but I ain't been up here since Dan left, and he must have run 'em so all last winter."

An insatiable desire to tell the man something he did not know took possession of me, and so I went to one of the vacant classrooms and on the blackboard drew a simple sketch of the apparatus and traced the current from the cold-air duct to tower by arrows. I had barely finished before he remarked: —

"I understand all that."

It was clear that here was a lucid delineator, an apt scholar, or a descendant of Ananias.

The next move was to the boiler-room. There was a roaring fire under one boiler. The gauge indicated fifteen pounds pressure. I remarked that it was not necessary to carry so high a pressure. The apparatus would circulate at any pressure.

"I know it; but sometimes she goes up, and then again she goes down; you can't keep her steady anywhere. The chimney ain't right."

One of my men fired this boiler for two weeks and found no

trouble, and so I began an investigation. The difficulty was soon found. The damper handle had worked off and had been replaced, but the wrong way, for when the pressure increased, the regulator opened the damper, and *vice versâ*. This was soon righted. I then observed that the gauge on the boiler not in use indicated fifteen pounds pressure.

"Why is that, Mr. Janitor?" I asked.

"That 's nothing but air," he replied; "it often does that."

Finding a pipe leading to the boiler quite hot, I inquired if the valves on the return from the coil in the ventilating shaft were properly adjusted.

"Oh, yes; they are just as Dan used them; they are all right."

It required an ocular demonstration to convince him that they were all wrong and that he was running the water of condensation to the cold boiler, for he persisted in his assertion until, at my request, he raised the safety valve and nearly lost his equilibrium in his effort to escape the blast of steam which followed. He concluded that he had been on the defensive long enough, and so he opened fire with: —

"Say, Mr. Engineer, that pump you put here to take the water out of the coils has never worked once since I came."

"There is no pump here," I replied.

"Yes, there is; this little one on the side of the boiler," said he, placing his hand on the injector.

"Have you tried to get the water out of the coils with this?"

"Yes, but it don't work, and it 's no use to try to get the water back into the boiler; that thing don't put it there. So, to keep the coils from getting full, I keep this cock open and let it run into the sewer."

I said this injector was not placed here for that purpose, but only for use in case of an emergency. "If, by any accident(?), such as occurred to your damper regulator, the pressure should exceed the city water pressure, and it should be necessary to feed, the injector would be serviceable. But it is not intended to work at low pressure, and there is no occasion for it. Further, the water of condensation in this apparatus will all return to the boilers by gravity if you will allow it to do so. You had better allow me to send my man here to straighten out matters for a day or two."

"Send him to fix that val; that 's all I want of him. And

there is another thing to fix: one of the little pipes in front of the coils that I open to let water out don't work; he can do that at the same time."

"Let me see to what you refer," said I, and he led the way to the heating chamber. "These are automatic air-valves. What do you do with them?" I asked.

"I open 'em every night and shut 'em every morning, and I tell you it 's a big job, for there 's a lot of 'em."

This is not overdrawn; it is all true, and the members of the board in charge have been advised. Here is an apparatus designed for, and capable of, securing all the comfort that can be obtained from an agreeable temperature and a pure air, costing a large sum of money, placed in charge of an ignorant, pretentious fellow. In his charge, in a basement under a school containing four hundred children and their teachers, are two horizontal tubular boilers, very safe in the hands of a capable, trustworthy man, but a very engine of destruction under certain conditions. Where will the responsibility rest if those conditions are developed?

(To be concluded in October number.)

NEW METHODS.

BY J. H. M.

LAST year's leaves are the very green
Of those that now in the woods are seen;
The roses to-day have the selfsame glow
Of those I picked ten years ago,
And the lilies flow'ring at my feet
In olden time were just as sweet.
The dearest words the heart has known
Adam said to Eve alone;
And the theories we think so fine
Were copies of those in Palestine.
There is nothing new under the sun —
In endless circles all things run.

SMITH COLLEGE.—AN HISTORICAL SKETCH.

BY CAROLINE E. HILLIARD, A.B.

SOMEWHAT more than a century ago a petition was drawn up by the leading men of Northampton asking the General Court of Massachusetts for a college near their town. In 1762 a charter was granted by Governor Barnard, incorporating "certain citizens of Hampshire County into a body politic, to be known as Queen's College." By the conditions of this charter the location of the college was to be in Northampton, Hatfield, or Hadley, and the education afforded equal to that of Harvard.

The projectors of this scheme met with poor encouragement, and it was not until the founding of Smith, the lineal descendant of Queen's College, that the desire of Hooker, Williams, and their co-workers was realized.

Smith College is a gift to women made by a woman, in the earnest hope that it would offer to them the longed for opportunities which had been denied her.

Miss Sophia Smith was born in Hatfield, Massachusetts, August 27, 1796. Her father was a soldier in the Revolutionary War. Her brothers were members of the General Court. She was a niece of Oliver Smith, well known for his generous charities.

It was during her girlhood that the wife of John Adams wrote to an English friend: "You need not be told how much in this country female education is neglected, or how fashionable it is to ridicule female learning."

The opportunities given girls were few indeed. While the sons went to college, the daughters were expected not only to forego outlay on their education, but even to contribute to the training of their favored brothers by teaching the district school or working in other ways. Knowledge beyond the three "R's" was considered unnecessary and even dangerous through its tendency to unfit women for the everyday duties of life.

Miss Smith saw and regretted the limitations placed upon her, but she received great pleasure and profit from the twelve weeks spent in school at Hartford and the studies carried on at the academy of Hadley, when she was eighteen years of age. Faith-

fulness was inborn. Her mind was keen and discriminating, characterized, we are told, by "judgment, rather than imagination, by thought rather than sentiment." She always wished to come to her own conclusions, deprecating any attempt to "make up her mind" for her. From her church she drew constant strength and inspiration, as her whole life bears witness. She was an active worker during the war, and always generous in assisting the suffering and needy. In the latter part of her life increasing deafness shut her out from ordinary conversation, but by reading she kept up a knowledge of current events and interests. During these years of middle age, large bequests brought to her business perplexities and an increased sense of her personal responsibility. After receiving her brother's large estate, she consulted her pastor on the disposal of what she regarded as a trust committed to her care. At that time it seemed best to her to provide an asylum for deaf-mutes. But after the need for such an institution was supplied by Mr. Clarke, she was left free to think of a want she had long recognized — a college for women. As she studied and thought of the matter, it came to her with growing conviction that here was the wisest and most helpful way of using her money. Such was her aversion to anything ostentatious that she consented reluctantly to giving the college her name.

Hatfield was first suggested for the site of the institution, but after long thought and advice from many people Northampton was selected. The growth of the college has abundantly testified to the wisdom of the choice. Easy of access from every direction, and offering many advantages and attractions, Northampton is the ideal home of the Queen's College of to-day, fully realizing the hope of the founder that there it might "do the most and do it best."

The college has been most fortunate in coming from the beginning under skillful management. Through President Seelye's efficient administration there has been strong and steady advance.

In 1875, when the college was formally opened, there were three buildings: the Academic and two cottages, the old Dewey House and the Hatfield. Facing Main Street the main building stands, lifting high its tower that the clock may be seen, to give warning of the flight of time and an invitation to improve it. The building is of brick with granite trimmings. It contains Social Hall, recitation rooms, president's room, post-office, reading

room, and library. The library comprises five thousand volumes at present, and is supplemented by the city library, to which the students have daily access.

Social Hall is used for chapel exercises, lectures, and large receptions. On entering the hall one is greeted by the serene face of Miss Smith welcoming the yearly increasing number coming to enjoy her bounty. On either side of the hall and over the speaker's desk are choice engravings and statuary.

When the college was opened the art gallery and laboratories were temporarily placed in the main building. In 1881, Mr. Winthrop Hillyer gave the college a beautiful art gallery, built in style similar to the main building. It contains studios and abundant material for the art student, including the finest collection of plaster casts owned by any college in this country, and a good collection of paintings, for the most part by representative American artists. In the same year the college was further increased by a music building, as the work under Dr. Blodgett had outgrown its accommodations. Music Hall is conveniently arranged for practice and class work, with a hall with excellent acoustic properties where the college may assemble for concerts or lectures.

In 1885 two magnificent gifts were received — the Lilley Hall of Science and an observatory. Before this time scientific students had been cramped for room. For the biological work a laboratory had been improvised in the music building, while chemistry and physics had been carried on only by close economy of space. Through the generosity of Mr. Lilley, ample provision for work was made in a large building arranged to meet in every detail the requirements of scientific study. The first floor and basement are given to the laboratories and lecture rooms of chemistry and physics. Here are rooms for qualitative and quantitative analyses, balance room, and apartment for photography in which Dr. Stoddard may evolve further demonstrations of the value of the composite. Physics has its own domain, with lecture room and laboratory, and dynamo run by city water for generating electricity. On the second floor are the biological and geological class rooms and laboratories, while the third floor is set aside for the scientific collections.

The observatory supplies a need long felt in spite of the courtesy of Amherst in offering means for astronomical study. It

contains a telescope of eleven inch objective, a transit instrument, and chronograph, and, through the liberality of the unknown donor, furnishes all the best appliances for advanced work.

The aim of the college was clearly defined in the address given by President Seelye at the dedication. It is designed to offer to women educational advantages equal to those open to men, that there may be culture of intellect for the "best enjoyment and most intelligent use of life." In accordance with the desire of the founder it is a Christian college. Systematic Bible study is carried on, daily devotional exercises are held in Social Hall, and the whole impulse of the college life is religious. The college is, however, unsectarian. Students are encouraged to choose their own places of worship.

From the beginning, Smith has been free from preparatory courses, believing such a department to be detrimental to the best interests of the college. The standard of admission has always been that of legitimate college work.

In 1885 a new schedule of study was made. Until this time there had been no provision for students of marked ability and definite aim who wished courses which should offer an equivalent for Greek. In recognition of this need a rearrangement of the college curriculum seemed advisable. Three courses of study are designated, each extending through four years; the classical, giving the degree of bachelor of arts; the scientific, bachelor of science; and the literary, bachelor of literature. For admission to these courses there are different, but equivalent, requirements. By this threefold division an opportunity is given for the exercise of individual preferences, while at the same time the guidance necessary for symmetrical work is afforded. As a check on overindulgence in electives, the maximum number of recitation hours weekly is fixed at sixteen, while to afford the stimulus necessary in exceptional cases the minimum of thirteen hours is also stated.

The Schools of Music and Art have prescribed courses, but members of the college proper may elect work in one or both of the schools. The aim of the Art School is to afford practical and theoretical teaching in the principles of designing, drawing, painting, and sculpture.

The School of Music gives a three years' course, requiring in addition to the special instruction in music a selected course of two years in college.

Postgraduate work has been successfully carried on by many alumni, who have obtained degrees for special excellence in almost every department of study. In this work the faculty has given most generous encouragement and assistance.

Annual scholarships of $100 each have been established for the aid of students who would otherwise be unable to obtain a college education. Further aid is given by the Sophia Ingalls Wallace fund — the income of $5,000; by the Elizabeth Forbes scholarship, — the income of $1,000; and by the Mary Nichols Bishop scholarship — the income of $5,000. The Helen Kate Furness scholarship — the income of a fund of $1,000 — is given to that member of the junior class who writes the best essay on a Shakespearian subject.

A prize of $200, payable in four yearly installments, is given to the student who passes the best entrance examination in the studies of the classical course.

As the number of students has increased, two new cottages — the Washburn and the Hubbard — have been erected, and in 1885, when still more room was required, the quaint old Denniston House was added to the college property and was called the Stoddard. Notwithstanding the accommodation of a large number of students in private houses in the city, at least one more cottage is imperatively needed.

The home life of the students is thoroughly happy. To Smith belongs the honor of proving the advantages of the cottage system by which the students are divided into large families, with consequent improvement in health, with freedom from irksome rules and increase of comfort. Each cottage is in charge of a lady who is to be a counsellor and friend rather than a supervisor. The arrangement of the cottages is convenient and pleasant. On the first floor are the rooms of the lady of the house, the parlor, reception room and dining room, with a few apartments for students. The second and third floors are used by the students. There are some single rooms and some for two occupants. The house furnishings are attractive and comfortable. With the additions of pictures, books, and "Memorabilia," many rooms are charming. In the changes by classes it naturally happens that the cottages are largely class-houses, which adds much to the enjoyment of the college life. In the Washburn House the "Olla Podrida" holds merrymakings with theatricals and general good times, while the

"Tertium Quid?" of the Hubbard is a not unworthy imitator. The general society, the Alpha, is more serious. It is organized for literary work and debate. The old chemical laboratory has been made into a cozy club room, with pictures, hangings, and open fireplace, and is in daily use for the college reading room.

The green is well filled with tennis courts. The gymnasium has a bowling alley and hall for recreation and exercises on stormy days. The hall is not large enough to fill the needs of the students in a satisfactory manner, and earnest efforts are being made by the alumni to provide a more commodious building.

Beside the pleasures directly connected with the college, Northampton presents many temptations of enticing walks and drives to river and mountains. From the college grounds one looks across the meadows to Mount Tom and Mount Holyoke standing unchanged in cloud or sunshine, until they become fairly personal, and it is as hard to leave them as it is to part from the other friends and guardians. Aside from the beautiful scenery of the surrounding country, Northampton has much of interest for the student in the large number of botanical and mineralogical specimens it contains.

College discipline is almost nominal. Regular hours and attendance at recitations are expected, but beyond these requirements the "unwritten law" of the students' good sense and refinement generally suffices.

Through the well balanced arrangement of work and the constant care taken for healthful living, the girls accomplish the course in most cases with improved health and in no case with injury, unless there is really poor health at the beginning or a predisposition to disease. Until 1885 no death or serious illness occurred in the college buildings.

Any account of the growth and work of the college would be incomplete without grateful acknowledgment of the labors of Professor Phelps, who died in 1883. A teacher of rare qualifications and strong personal magnetism, a kind and sympathetic friend, it will always be considered by the older alumni a privilege to have known him.

In September, 1883, the "Phelps Memorial Library Association" was organized by students of Smith College. The object of the association is to make additions to the Phelps Library, which was given to the college. Its first work was the purchase

of the portrait of Professor Phelps, which now hangs in the library. Carefully selected offerings of books are sent every year, which are said to have strengthened "very materially the capacity of the philosophical library for effectual work." By the provisions of the constitution, "Any student of the college who may wish to honor the memory of Professor Phelps by joining the association may become a member."

On the large stained glass window over the entrance of the main building is a copy of the college seal, its device a woman radiant with light, and underneath the motto: *EN THI APETHI THN ΓΝΩΣΙΝ.* As the motto expresses the desire of the founder, so does it symbolize and animate the college work: "Add to your virtue knowledge."

A DISAPPOINTMENT.

Across the blue sky together
Raced three little clouds one day;
The sun they had passed at noontime,
The west was a league away.
"Oh, he is so slow," they whispered,
"So slow and so far behind!
We three can be first at sunset,
If we only have a mind."

They laughed to themselves in triumph,
They took hold of hands and flew —
But ah! what a sad disappointment
They afterward found and knew;
For this they had quite forgotten,
As they hurried along through the air,
There never can be any sunset,
Till the sun himself is there.

THE PLACE OF LITERATURE IN THE COLLEGE COURSE.[1]

BY HOMER B. SPRAGUE.

WE are met at the outset with the inquiry, What is literature? In its broadest sense, of course, it includes the whole body of written and printed matter. We soon discover, however, that the great mass of such productions has no claim whatever upon our attention. A dozen topics every hour, a thousand every month, a million every age, occupy brief attention, are perhaps of temporary importance, but quickly pass, first into insignificance and then into oblivion. We enter a great library. With pride at the accumulated evidences of mental activity, but with despair at the utter hopelessness of an attempt to read even a single page in every one of the volumes, we sigh for the leisures of Methusaleh, that we might revel in these riches. We promise ourselves that in the next, the immortal life, we shall have time for all! But the moment we look inside the covers of most, the illusion begins to vanish. Hardly two grains of wheat in two bushels of chaff! Books of pettiest rhymes and blankest verse, books of science falsely so called, of philosophies long since dead, forgotten subtleties of the schoolmen, wranglings of nameless politicians, barren controversies in physics and metaphysics; books of feeble fiction, of travels in which the travelers saw nothing, genealogies of kings and horses, unmeaning statistics piled mountain high, speeches in which nothing was said, meditations in which nothing was thought — even the good books, litigation, navigation, and all the others that end in *-ation;* tribal autonomy, dismal economy, infant astronomy, and all the others that end in *-onomy;* bibliography, cosmography, geography, stenography, and all the others that end in *-ography;* mysticism, asceticism, Millerism, Mormonism, transcendentalism, and all the others that end in *-ism;* astrology, hippology, phrenology, necrology, ecclesiology, demonology, and all the others that end in *-ology*, — these had their day, perhaps served a useful purpose, but they are superseded:

[1] Read at the session of the Department of Higher Instruction in the National Educational Association at Chicago, July 13, 1887.

the new -ology, -ism, etc., expels the old, the life goes out, they pass over to the majority in the catacombs of the great library. Some Caliph Omar makes them useful in after ages as kindling wood, with the remark that if they reproduce the Koran, they are useless; if they antagonize the Koran, they are pernicious. Or, unearthed by antiquaries after hundreds of years, the fossil may catch the eye of an occasional dry-as-dust pedant, or mousing antiquary, or special investigator; like marks in desert sand or on a pebbly beach, that tell where wind once blew or water flowed; but of the half million books in a great library to-day, not one in a hundred, perhaps not one in a thousand, has more nutriment for the average reader than have the winds and the clouds.

The reason is, they take no hold of man as man, and therefore they deal with the transient, not the permanent, and are themselves passing phases, not substantial forms. As Milton declared the squabbles of the Saxon Heptarchy to be of no more value to us than the battles of kites and crows, we may for our present purposes reject as not included under our definition four hundred and ninety-nine out of every five hundred. The leading characteristic, the prime quality of literature, in the restricted sense in which we shall use the term, is *universality*. Such quality, for example, is possessed by Homer's Odyssey, Dante's Paradiso, Shakespeare's Tempest, Cervantes' Don Quixote. Rooted and grounded in human nature, the work speaks from the heart to the heart, in every language into which it may be translated, and to all men. In a familiar old ballad there is a stanza that illustrates this.

> O Helen fair, beyond compare,
> I'll wreathe a garland of your hair,
> Shall bind my heart forevermair.

There is a homely poem of Burns, simple even to childlikeness, not containing a single perfect rhyme; yet while love and beauty and death last, it can never grow old. I quote some of the familiar lines.

> Wi' mony a vow and lock'd embrace
> Our parting was fu' tender,
> And pledging aft to meet again,
> We tore oursels asunder—
> But oh, fell Death's untimely frost
> That nipt my Flower sae early!
> Now green 's the sod and cauld 's the clay
> That wraps my Highland Mary.

Oh, pale, pale now, those rosy lips
I aft ha' kissed sae fondly,
And closed for aye the sparkling glance
That dwalt on me sae kindly;
And mouldering now in silent dust
The heart that lo'ed me dearly;
But still within my bosom's core
Shall live my Highland Mary!

We may not weep with a distinguished Massachusetts scholar every time we read Homer's Catalogue of Ships in the second book of the Iliad, but we do not wonder at young Arthur Stanley's tears in translating to Dr. Arnold another passage in that poem, and surely no day will ever dawn when the parting of Hector and Andromache will fail to stir tender emotion and stimulate to patriotic self-sacrifice.

The distinction which we have thus endeavored to draw between the special and the universal, the transient and the permanent, in answering the question, What is literature? is kindred if not quite identical with that made by De Quincey between what he designates as "the literature of knowledge" and that which he styles "the literature of power." I quote his illustration.[2]

"What do you learn from Paradise Lost? Nothing at all. What do you learn from a cookery book? Something new, something that you did not know before, in every paragraph. But would you therefore put the wretched cookery book on a higher level of estimation than the divine poem? What you owe to Milton is not any *knowledge*, of which a million separate items are but a million of advancing steps on the same earthly level; what you owe is *power*, that is, exercise and expansion to your own latent capacity of sympathy with the infinite, where every pulse and each separate influx is a step upward — a step ascending as upon a Jacob's ladder from earth to mysterious altitudes above the earth. All the steps of knowledge, from first to last, carry you further on the same plane, but could never raise you one foot above your ancient level of earth; whereas the very *first* step in power is a flight, is an ascending into another element where earth is forgotten. . . . The Principia of Newton was a book militant on earth from the first. In all the stages of its progress it would have to fight for its existence. . . . As soon as La Place,

[2] Essay on Pope, p. 152, et seq.

or anybody else, builds higher upon the foundations laid by this book, effectually he throws it out of the sunshine into the decay and darkness; by weapons won from this book he superannuates and destroys this book. On the contrary the Iliad, the Prometheus of Æschylus, the Othello or King Lear, the Hamlet or Macbeth, and the Paradise Lost, are not militant but triumphant forever, as long as the languages exist in which they speak or can be taught to speak."

The question might here be asked, If one great work on mathematics, or on other technical subject, is displaced by a better, and the better by a better still, and so on; as the steam engine may give way to the electric motor and be at last forgotten; why may not the same disuse and oblivion overtake the masterpieces of literature? We may again quote: "One lovely pastoral valley is not superseded by another, nor a statue of Praxiteles by a statue of Michael Angelo. . . . Human works of immortal beauty, and works of nature, in one respect stand on the same footing: they never absolutely repeat each other; never approach so near as not to differ; and they differ not as better and worse, or simply by more and less; they differ by undecipherable and incommunicable differences that cannot be caught by mimicries, nor be reflected in the mirror of copies, nor become ponderable in the scales of vulgar comparison. . . . All the literature of knowledge builds only ground nests that are swept away by flood, or confounded by the plow; but the literature of power builds nests in aerial altitudes of temples sacred from violation, or in forests inaccessible to fraud. *This* is a great prerogative of the *power* literature; and it is a greater which lies in the mode of its influence. The *knowledge* literature, like the fashion of this world, passeth away. An encyclopædia is its abstract; and, in this respect, it may be taken for its speaking symbol, that before one generation has passed, an encyclopædia is superannuated, for it speaks through the dead memory and unimpassioned understanding." The makers of the Encyclopædia Britannica, of Appleton's New American Cyclopædia, and of Johnson's Cyclopædia, are driven to issue annual supplements and finally new editions, on penalty of seeing those works growing obsolete, just as Ray's great encyclopædia of half a century ago is buried in dust on old bookshelves. Their usefulness dies and can have no revivification. But not so with the great works that inspire, guide, train human passion, and kindle and sustain lofty sentiment.

These distinctions are vital. "Knowledge is power" says the proverb; he who knows is he who can; even etymology teaches that. Yes; but there are degrees and kinds, differing immeasurably. We are not speaking of wage-earning power, or bread-and-butter-producing power, but soul power. The literature that merely gives information is indeed valuable so far as it lays a basis of things needful to be known in order to keep these bodies safe and strong, and furnishes a gymnastic drill to make the intellect vigorous and keen; but as food for the soul it is the thinnest gruel. The pride, the processes, and the achievements of mere intellect — these change, grow old, are laid at rest; but the heart and its workings and its triumphs live forever. "The things which are seen are temporal; the things which are unseen are eternal." Is not this what Saint Paul means? "Whether there be prophecies, they shall fail; whether there be tongues, they shall cease; whether there be knowledge it shall vanish away." But faith abideth; faith that endures as seeing Him who is invisible; hope, that anchors the soul in every storm to the moveless throne; and, above all, charity, or heart's love, that is yet to fill the universe with joy.

In selecting then from the thousand immortal books among five hundred thousand dead or dying, we shall not err in giving prominence to those that are built on the foundation of human passion, appeal to human sentiments, and so kindle human sympathy, and in using all else mainly as helps to these. This principle of choice will vastly reduce the number to be read.

Still further reduction must be made. Let it be by a vigorous rejection of works that do not possess beauty of style and due proportion of parts. The final sifting must leave us polite literature alone, *belles-lettres*. Each shall be a model of excellence, worthy to be reckoned a triumph of art. The intrinsic worth must be embodied in a graceful form.

And among these, for there may still be hundreds, we must again select. Life is too short and too precious to permit us to feed the soul on any but the most nutritious diet.

Who shall separate for us the little that is really everlasting from the much that is fleeting, the little that is really universal from the much that is partial, the little that is supremely graceful from the much that is unsymmetrical? Great men fail us here. The best critics cannot be depended upon. They disagree, or are

even blind. "There is something touching" says Emerson, "in the madness with which the passing age mischooses the object on which all candles shine and all eyes are turned. . . . A popular player, nobody supposed that Shakespeare was the poet of the human race. . . . Bacon, who took the inventory of the human understanding for his time, never mentioned his name. . . . If it need wit to know wit, according to the proverb, Shakespeare's time should be capable of recognizing it. . . . Since the constellation of great men who appeared in Greece in the time of Pericles, there was never any such society; yet their genius failed them to find out the best head in the universe. The poet's mask was impenetrable. You cannot see the mountain near."[3]

Says Mrs. Browning: —

> We 'll suppose
> Mount Athos carved, as Persian Xerxes schemed,
> To some colossal statue of a man:
> The peasants gathering brushwood in his ear,
> Had guessed as little of any human form
> Up there, as would a flock of browsing goats.
> They 'd have, in fact, to travel ten miles off
> Or ere the giant image broke on them.

Coleridge, in his Biographia Literaria, declares, in regard to Wordsworth's first appearance as an author, that never was the emergence of a great genius above the horizon more manifest, if they had but eyes to see. "This will never do!" said a great critic, of Wordsworth's first attempts. "The poesy of this young lord belongs to the class which neither gods nor men are said to permit," said Lord Jeffrey of Byron. So fared Coleridge himself at first, and Shelley and Collins and Gray and Browning at the hands of the critics.

The difficulty of selection of the fittest works is further increased by the fact that some are in the border region between the two literatures and partake of the qualities of both. Lowell speaks of "the desolate no-man's land of a religious epic." Paradise Lost, however, and perhaps The Light of Asia, should their phases of religious belief turn out to be transient, — limited, say, to another thousand years, — have yet in them so much of human interest, of heroism, of tenderness, and of renunciation, appealing to universal man, by Abdiel, by Satan, by Siddartha, and by the

[3] Emerson's Representative Men.

Messiah, that they might last for many ages, though the special theology of Protestantism or Buddhism were to pass away. That "desolate no-man's land," as Lowell terms Paradise Lost, has indeed but two human inhabitants; but they are intensely human. And though it is fanned by the breath of heaven fresh-blowing, and he who visits it looks far out into the ocean of eternity, he yet converses with angels that are but heroic men; and inhaling, in the company of the manliest of authors, the pure atmosphere of the enchanted land, he finds himself stronger for everyday life and duty. He hears, too, as in Prospero's island, a music as yet unequaled in grandeur, a sonorous melody, which, combined with loftiest imagery and tremendous energy, has given to our language the word Miltonic, and which alone would insure the poem immortality.

If the opinions of eminent critics are misleading, much more untrustworthy is popular favor. Forty editions of Tupper's Proverbial Philosophy were called for by the last generation; but who reads it now? We must wait for the survival of the fittest. When several generations and a thousand critics have viewed the work, not in the humid and many-colored rays of passion or prejudice, but in what Bacon calls "dry light," and have set the author's statue in the Pantheon, we may accept the apotheosis at last.

This test excludes the works of all authors now living. "Let no man be called happy till his death!" A truly great author is not in haste to be canonized. "I can wait a century for a reader, since God has waited six thousand years for an observer," said the greatest of astronomers. Shakespeare betrays no desire for popularity. Milton would have "fit audience, though few." Bacon is content to leave his name and fame till "some time be passed over."

Our field from which to select for study is thus narrowed to choice productions of the *past*. But the number of these is still too great for any course of college study. Not a tenth can be thoroughly treated in the allotted time. We must limit ourselves still more. How?

Here we are aided by the unanimous voices of the ages. The great masterpieces of Greece and Rome, of Florence and France and Spain and Germany and Great Britain (may I include the United States?) are few. But even these may be too many. Which shall we take, and which leave?

This brings us face to face with the question, What is the object in view in the study of literature in college, and what the method?

I think it may be safely answered that the end is the same as in all high art, moral elevation and inspiration through beauty or sublimity. The selections must not only approach perfection in outward form, but they must be types of inward grace, of purity, and of power.

But where shall we find the time in the already crowded curriculum? What studies shall give way?

Relatively, though not absolutely, too much has been made in school and college of mere intellectual keenness and activity. Narrowness and meanness may co-exist with mental sharpness and vigor, as in Mephistopheles and the devil. Profound scientific theories may make one acute, quick, strong, without conducing at all to mental exaltation, and without any suggestion of social or civil duties. The scientist finds law everywhere, but the law-maker nowhere. Physical science is having a poetic revenge for the general neglect or frequent scorn she has suffered in all the ages past. It is her day of triumph now. Her stupendous progress stamps the century. But shall she think to dominate the whole process of education? In the first place, there is danger of excessive specialization. Universities cannot, much less can colleges, make finished chemists, botanists, engineers, zoölogists, nor specialists of any kind — but *men*. A few generalizations are possible, a little outlining of the great fields may be given, a few foundations laid, some methods of investigation shown, students may be told how and where to look. Little else in science can be done. In the next place, we want studies that bear more directly upon the moral conduct of life; studies that touch heart and conscience; that waken sympathy and kindle imagination; studies that recognize the visible world as a symbol of the invisible, a changing vesture veiling the unchanging goodness and loveliness and power. Well says the Earth Spirit in Faust,

> In being's flood, in action's storm
> I walk and work, above, beneath,
> Work and weave in endless motion —
> Birth and death, an infinite ocean —
> A seizing and giving the fire of the living —
> 'T is thus at the roaring loom of time I ply,
> And weave for God the garment thou seest him by.

The scientist at best but studies garments. We want to know the weavers, to know man and to know God. "I would rather," said Thomas Arnold, "that a son of mine believed that the sun went round the earth, than that he should be entirely deficient in knowledge of beauty, of poetry, and of moral truth."

Historical study has always and deservedly been regarded as of importance in a college course. However it may have been formerly, as in the case of natural science, it is hardly possible now that it should here take the form of extensive special examination and critical analysis of minute and multifarious phenomena and documents in limited fields. Rather it must give itself to the investigation of general laws and a synthesis of results on a large scale, and so work out a philosophy of history. In either case, though these studies contain the material from which wisdom may be sublimated, they do not often contain, much less impart, inspiration. We need all three: the knowledge, the wisdom, the inspiration; but especially the last, the high resolve and heroic action growing out of transcendent wisdom.

In connection with historic studies, and to some extent with the study of literature, some practical skill in statecraft should be secured by every student. There is pressing need of this. "A state," says Milton, "ought to be as one huge Christian personage, one mighty growth and stature of an honest man."

Few would diminish the time and pains given to mathematics or to mental or moral philosopy. Perhaps the greatest danger here is somnolence.

Something may be subtracted from the time usually devoted in college to languages. Philosophy and the science of language may well receive attention; and incidentally there will come, with a study of the great models of literary excellence, a rounding out and a finishing up of linguistic work previously begun. But all elementary study of languages ought to be remanded to the secondary schools, and the whole method of the acquisition of ancient and modern languages should be radically changed. To spend six, five, or even four years in obtaining sufficient Latin and Greek for the profitable pursuit of appropriate college studies is largely a waste of time and energy. By proper instruction, by careful and wise direction of labor pursuing but one language at a time, by contagious ardor caught from the teacher, by judicious assistance daily rendered, by discarding unimportant detail and

trivial exceptions, and by remembering ever that the object is to enable the student to translate from the ancient language into the English and not the reverse, fully one half of the time ordinarily spent on these studies can be saved. One year rightly used would suffice for Latin, another for Greek, and one each for French, German, and Italian, giving, also, facility in speaking the modern tongues. The time will come when colleges will cease to require candidates not only to be crammed with mere grammatical husks, but even to discriminate among the Attic husks and Ionic husks and Epic husks, as an indispensable prerequisite to admission; and when they will discontinue that unnutritious diet after matriculation, and in this busy world no longer spend month after month in assiduously uprooting tares and thistles in the hopeless attempt to raise a crop of purely classic husks. "I won't answer any more such nonsense!" said a now famous journalist, inserting an ungentle epithet before the word "nonsense," to the college tutor who, neglecting weightier matters, was torturing him in class recitation, filling his skin with the sharp prickles of Greek accents, impaling him on oxytones and paroxytones and proparoxytones, plying the twists of perispomena and properispomena, tearing his flesh with sarcastic questions about final clauses. Tradition has it that he was obliged to leave Alma Mater, but soon found consolation in a handsome salary as foreign correspondent of a leading New York newspaper.

To furnish the equipment our young men need for active service in the cause of humanity, there is perhaps no other preparation so valuable as the study of the greatest works of the greatest authors. I know there is a prevalent notion that literature is not strengthening. Many years ago I heard a distinguished scholar couple the words "weak" and "literary" as if they belonged together; but his own example proves the contrary; he is both literary and strong. Shakespeare's training, like that of all great writers who preceded him in ancient or modern times, and he was a good business man, was wholly literary rather than scientific. What did Alexander the Great not owe to Homer? Cæsar knew nothing of what we call science. Napoleon fed on Plutarch more than on gunpowder and mathematics. Milton was chiefly indebted to Homer, Hesiod, Æschylus, Sophocles, Euripides, Ovid, Virgil, Spenser, and Shakespeare; Chatham, Burke, and Webster, to Milton; Rufus Choate, the foremost jury lawyer of the past genera-

tion, to all of these. The foremost practical statesman in England to-day is the man of letters, William E. Gladstone; the foremost statesman in Europe to-day is a graduate of two universities, Prince Bismarck; the foremost lawyer in America to-day bore off the highest honors for literary excellence at Yale just fifty years ago, and is said to have continued his classical studies ever since, William M. Evarts; one of the ablest of the many able ministers who have represented America at the Court of St. James is our foremost man of letters to-day, James Russell Lowell; our smartest —I use the term designedly — living statesman possesses rare literary skill, James G. Blaine. These examples show that the practical cutting edge of tact is not less keen when it has a heavy backing of solid learning. Did not the pen of Moses largely shape Hebrew civilization? In Greek life, and even in Roman, did not the Iliad and the Odyssey exert enormous power? Is not our highest modern civilization the outgrowth of the Bible? Wordsworth never uttered profounder truth than when he wrote,

> We must be free or die, who speak the tongue
> That Shakespeare spoke, the faith and morals hold
> That Milton held.

The Bible, Shakespeare, Milton — whoever will thoroughly master these three will have a better business education than nine tenths of our college graduates: for he will have a knowledge of human nature, a knowledge that is better preparation for success than a knowledge of all the laws of matter and all the processes of machinery and all the tricks of trade.

But business success is not the principal thing. Nor is the chief object in the study of literature to gain just canons of criticism, important as these are; nor to memorize precious passages that will fulfill the triple function of a touchstone, a keynote, and "a joy forever." Nor is the chief object to learn the history of literature, nor the opinions of any man or set of men about literature or about any portion thereof or about the man who produced it. A little of the flavor of the historic sea in which the shell-fish grew; a little of the pepper and salt of wise criticism; a little of the personal history of the bivalve, if we can get it; may not be amiss: these may whet the appetite or enhance the relish; but they are no substitute for the oyster itself.

Neither is the chief object to learn etymology, or syntax,

or prosody, or rhetoric, or philology, or logic. These indeed are very valuable, and may perhaps be studied best by making a great author's text the basis of investigation. Our schoolmasters often builded vastly better than they knew, when they made us painfully parse Milton's Lycidas, Pope's Messiah, or Coleridge's Hymn to Mont Blanc. While we were intently listening to find grammatical concords, as if that were the chief business of life and our teacher seemed to think so, we heard faintly at first but by-and-by more clearly the divine harmony that breathes through those immortal lines, and that could never be rendered entirely inaudible by the noisy machinery of gerund-grinding. While we hacked and hewed and bunglingly dissected the apparently lifeless form, to discover and label etymological tissue, syntactical sinews, logical bone-frame, the *caput mortuum* gradually became a thing of life and beauty, as the cold marble under Pygmalion's chisel grew warm with immortal loveliness.

Neither is that graceful utility which Cicero points out in his oration for Archias, the main thing; the solace, the ornament, the light, the companionship, the serenity of soul which these studies bring. Lowell somewhere prettily says, and the value of the remark can hardly be overestimated: "If they do not help us get bread, they sweeten all the bread we ever do get." This result is very precious, but still secondary: we are here to diffuse, not to monopolize, sweetness and light.

To create and maintain in every student the highest ideal of human life is, or ought to be, the chief work of any college. There is no study like that of the best literature to form and glorify such an ideal. It reveals possibilities, touches to finer issues, broadens thought, kindles faith, sets the soul free, quickens and greatens, as nothing else can. Get near Homer and Demosthenes and Thucydides and Plato and the Greek tragedians; get near Virgil and Lucretius and Cicero and Tacitus; if you would know

> "The glory that was Greece, the grandeur that was Rome."

Arm in arm with a universal author, you are in living contact with the great facts and laws of nature and of human existence; you see them from the master's lofty standpoint and your life is larger than before. A single paragraph of Burke, if chewed

and digested and assimilated, much more a great oration like his speech on Conciliation with America, can hardly fail to broaden the horizon and liberalize the soul. Even the daily speech of our fathers, unlike the flippant nothings that fill our mouths, was tinctured with dignity and grace, caught from the fewer but better books with which their minds were saturated, and from companionship with the Chrysostoms and Burkes and Websters, the Shakespeares and Miltons and Johnsons, and the heroic beings that were the children of their brain. He that walketh with wise men shall be wise. The great authors give us their children and give us themselves.

> "Ever their phantoms arise before us,
> Our loftier brothers, but one in blood;
> At bed and board they lord it o'er us
> With looks of beauty and words of good!"

My time has expired, and I must not now discuss at length the question, How ought the great masterpieces to be studied? It is easier to tell how not to do it. In one of our foremost universities two or three years ago, I was present at a class exercise. They were reading a great writer's works. One member, evidently among those most interested, — for he occasionally glanced at his book, — lay flat on his back at full length directly in front of the distinguished professor and within fifteen or twenty feet of him. The attitude was symbolic; the example was contagious. Was I dreaming? I have been present at many "performances" in English literature in school and college during the last twenty or thirty years, but never at another so dull and dead, nor have I ever breathed an atmosphere more somniferous out of a Chinese "opium joint."

Above all other men the teacher of literature should be intensely alive, not a cistern of stagnant knowledge, but a battery of communicative lightning; the incarnation of tact and vigilance and energy; making every class-exercise a work of high art; seizing instantly the heart of every passage, placing it in vital relation and proper perspective to the writer and the whole composition, focusing all eyes of students upon it, irradiating the subject with flashes of wit, wisdom, poetry, eloquence, parallels drawn from far and near, till the whole masterpiece blazes with all the fire and force and beauty that filled the soul of the author himself.

One word more. The course in literature should begin in the primary school, or even in the kindergarten, with memorizing of the choicest simple pieces. Always the greatest pains should be taken in the selection of passages. This exercise in memory should be carried on continuously and progressively through the grammar schools, with some attempt at logical method — analysis of beauty — in the higher grades. In the high school, it should take the form of thorough study of some of the simpler masterpieces, like Gray's Elegy and Scott's Talisman, Milton's Comus, Wordsworth's Ode on Intimations of Immortality, Shakespeare's Merchant. By thorough study is not meant counting syllables nor scrutinizing orthography, nor affixing a grammatical label to every word, nor distinguishing colons from semicolons, nor tabulating lines spoken by different characters, nor deciding whether the author uses "his" for "its" a hundred times or only ninety-nine or has seventy-five Anglo-Saxon roots to every twenty-five Latin; nor whether he planted a mulberry tree, or paid taxes with the right hand or the left, or had a short nose and a long upper lip, or spoke with mysterious meaning when he said, "It is a wise father that knows his own child;" but to seize, ponder, understand, enjoy, and hold fast, as an inspiration forever, all that is beautiful or noble or precious in the work under consideration. In college, some great work of one of the world-authors — Greek, Latin, Italian, French, German, or English — should be constantly under investigation in a weekly, semi-weekly, or, better still, a daily, exercise through the four years, skill being exercised in so marking out the succession that the study may not only progress from the less to the more difficult, but that a tendency towards goodness and greatness may be ever more and more confirmed; the teacher, to use the language of Milton, "tempering them such lectures and explanations, upon every opportunity, as should lead and draw them in willing obedience, inflamed with the study of learning, and the admiration of virtue, stirred up with high hopes of living to be brave men and worthy patriots, dear to God and famous to all ages."

Well did the ancients call this and kindred studies the *Humanities.* For, as we have seen, the prime quality of all literature worthy of the name is its deep hold of man as man; and the best is that which appeals most strongly to the highest human qualities; and the special object in view in the study should ever be

perfect manliness and womanliness; and the chief joy that accompanies is in the association with heroic manhood and angelic womanhood; and the best result is unselfish service enriching mankind; and the one thing indispensable in him who would teach it is that he be sympathetic, large, sweet souled, thoroughly equipped, intensely alive and true. Manliness, in the best sense, is godliness. With the conception of the possible union of the human and the divine, poetry passes into religion; for in that vision which Lowell declares to be the sublimest reach to which poetry has risen, the last lines of Dante's Paradiso, beginning,

> **Within the deep and luminous subsistence**
> **Of the High Light appeared to me three circles**
> **Of threefold color and of one dimension,**
> **And by the second seemed the first reflected**
> **As rainbow is by rainbow, and the third**
> **Seemed fire that equally from both is breathed,**

—in this wondrous vision, where the High Light is the very substance of God, and the three luminous revolving circles symbolize the Trinity of the Eternal Power, the Eternal Love, and the Eternal Wisdom, Dante tells us that, after gazing for a time on the three, all his sight was gradually absorbed in the second; for there he saw painted our image, the image of *Man!*

He who must needs have company must needs have sometimes bad company. Be able to be alone. Lose not the advantage of solitude and the society of thyself; nor be only content but delight to be alone and single with Omnipresency. He who is thus prepared, the day is not uneasy nor the night black unto him. Darkness may bound his eyes, not his imagination.

Sir Thomas Browne.

THE NEED OF A WESTERN FITTING-SCHOOL.

BY FREDERIC A. HALL, A.M., DRURY COLLEGE, SPRINGFIELD, MO.

IF the Western colleges were holding to their original position; namely, that the preparatory department should be annexed to the college as a temporary arrangement only, this article would perhaps be uncalled for. But three years' in Michigan and twelve years' experience in Missouri, together with a somewhat intimate knowledge of the schools and colleges of the West, have convinced the writer that, in the colleges themselves, there has been growing up a change of opinion on this question.

Let us look at the matter as presented by the average Western college. The term *Western* would include most colleges west of Ohio, but as we think the fitting-school should be west of the Mississippi, we will confine ourselves to that territory. In all the years that many of these colleges have existed, scarcely a dozen have yet separated their preparatory and collegiate departments; although the intention to do so was well fixed when the colleges were founded.

To day the Western college argues as follows: —

1. It is better to have the preparatory department united, even intimately with the college, for the reason that the young students thus have the benefit of liberally educated and experienced teachers. The student often becomes attached to his teacher and as a result takes a full college course, when otherwise he would terminate his studies with the preparatory.

2. These students, while young, are introduced into college atmosphere, influences, and associates. They receive intellectual stimulus from contact with those who are their superiors in knowledge. Then, too, being already acquainted with college methods and college life, the change from the preparatory to the college is but a slight affair; their teachers are the same and their surroundings are the same.

3. It is cheaper. Most of these colleges are poor and have no income outside of their tuition fees. To have a college of any standing it is necessary to have associated with it four or more men representing language, mathematics, philosophy, science,

etc. These same men, it is claimed, can teach the elements of these branches as subordinate to college work, and thus the work of both departments be done with the cost practically of one — the higher.

4. Another argument, upon which much stress is laid, is that the college teachers have an opportunity of training the preparatory students in their own way. So the students pursue the same methods of study throughout their course.

These four points cover, substantially, the ground taken by the Western colleges which insist upon keeping their preparatory departments.

It would seem to one examining their catalogues and conversing with their faculties that there is one other point which, although not commonly mentioned, plays an important part. To the Western college large numbers are essential: for the college either depends upon its tuitions and thus upon its numbers, or upon its tuitions and gifts from friends who are influenced largely by its numbers. Hence it burdens itself with primary, preparatory, normal, manual training, music, and art departments in order to catch every one who has a notion of studying anything.

In reply to these arguments we would say: —

1. The first is based on the assumption that experienced and thoroughly equipped teachers are found in colleges only. Such reasoning is, we fear, the result of looking at a narrow horizon. In Eastern academies such as Phillips, either at Andover or Exeter, at Williston, at Lawrenceville, or at the Boston Latin School, are to be found as careful scholars, as good teachers and men, built on as large a scale every way, as can be found in any of our colleges.

There has been a great change in that respect during the last half century; men of the best ability are giving *fitting* work careful thought. Furthermore we have never been able to see that the fact of having a college professor teach preparatory boys materially adds to the chances of a college course for the boys.

2. The natural reply to the second point is that the whole case is not presented. Students are also introduced into all the *disadvantages* of college atmosphere, influences, and associates at an age when they are too immature to know how much of what they see is desirable. These young people are brought into daily contact not only with the good but perhaps even more with the bad.

Habits of study are, and should be, quite different in these two departments of education, and what may be entirely appropriate hours and methods for a young man accustomed to study may be altogether unsuited to a boy. Human nature is such that the young are inclined to imitate the apparently loose manner of the college student rather than his honest efforts.

3. As to the third point it is undoubtedly true that it is a saving in expense to have four men do eight men's work. But to have the argument carry the weight intended, it must be established that the character of the work is equally good. Otherwise it simply means that we pay less and get an inferior article. In education, perhaps more than anywhere else, the best is the cheapest. We hope to show, moreover, that a teacher doing two kinds of work very different in character will not do either as well as though his attention were directed to one grade only.

4. The fact that professors are able to train their pupils to their own notions is admitted, and is, we claim, an argument against this combination, for we recall no man, among all the famous teachers, who has been noted for his ability to instruct children and youth equally well. To prepare a boy for college, and to take a boy through college, require characteristics of mind so vastly different that a combination which fits a teacher to do both grades of work equally well is rarely found.

So all great teachers have made their record in some one department of instruction. To prepare a boy in the elements of a study requires, preëminently, power to create enthusiasm and peculiar skill in drilling; while to give the highest value to a college course there must predominate the ability to give a comprehensive view. The first demands frequent and sharp analysis. The second, the broad, philosophical turn of mind. The one is to make boys notice small things. The other to make men think great things. We here speak, of course, in general terms.

In the preparatory work the boy is trained to take language to pieces; to learn its construction, to know its formation. In college he must grasp a language as a whole and compare it with other languages. The attempt to unite the two kinds of instruction has given the West an unenviable reputation for language teaching.

Then again, teachers very generally have some *hobby* which they persistently ride consciously or unconsciously. It may be

the nice use of "mév" and "dé" or the peculiarities of the subjunctive. With few exceptions a scholar can get all of a teacher's most valuable thoughts during two or three years of daily contact. He becomes acquainted with his hobby. But broad scholarship requires an acquaintance with more than one man's hobby, so a change of teacher may be an excellent thing for a boy. And then it is advantageous for him to change associates and surroundings also; to come under new influences and to find a life unlike that to which he has been accustomed.

There are other reasons why, in the opinion of the writer, colleges and preparatory schools should not be combined. Colleges having fixed requirements for entrance lower them to accommodate their graduating preparatory class when it has not been able to meet them in full. Perhaps we may be pardoned for referring, as proof of this, to the institution with which we are most familiar and which has certainly as high a standard of admission as any college in the State, if not in the West. While this standard is, in general, attained by the entering class, yet this year, for economical reasons, the facilities for instruction were lessened, the class has failed to do the amount of work required for entering college, and yet no one for a moment questions its unconditional admission.

When the test is severe for graduating from the preparatory it is observed that the students do vigorous work during the last year of preparation but make little use of their freshman year in college. The fact of having passed a rigid examination and that another trial is some distance in the future seems to dull ambition.

Another point of interest is that, in the few colleges which have been bold enough to take the step, each movement towards a separation of the two departments has resulted in the greater efficiency of both. The writer has in mind at least two colleges where this has been carefully watched. In the first one the preparatory has, year by year, added to its faculty and relieved the college professors. In the other, there was by gradual steps a complete separation, the students of the two departments meeting but once a day — at chapel. In this latter case the preparatory became practically independent and raised its standard above all other preparatory schools in the State.

An institution which professes to cover a wide field of work

with a small corps of teachers must either do it all superficially or depend for its reputation on some one feature. As most colleges seek to make their reputation on college work, it follows that the preparatory is neglected. Even were it not so, the college would draw to itself all the credit, so that as a fitting-school the preparatory could never secure any considerable reputation.

On my table are placed catalogues of more than one hundred colleges and academies. By comparing the catalogues of Eastern and Western colleges some items of interest are shown. Of Western colleges but two have one half of the total attendance in the college proper. In seventy-five per cent. the students of the preparatory department are nearly four times greater than those in the college, although they prepare their own students. On the other hand, an examination of a few standard academies shows that a much larger proportion of their graduates take a college course. These graduates, however, either enter the Eastern colleges of the second grade, or, spending a year or two at Eastern academies, fit themselves for Harvard, etc. Of one hundred and forty-five graduates from one of our best Western academies, eighty-two entered Eastern colleges and twenty-two Western colleges. A glance at some of the Eastern fitting-schools shows that in Adams Academy, Massachusetts, of sixty-nine students, the majority were from the West and South. The attendance at Phillips Exeter Academy was more than half from States outside of Massachusetts and New Hampshire, a larger portion being from the extreme West. The Boston Latin School annually draws to a residence in Boston families from the West. Phillips Andover always has many students from the West and South. Williston had nearly as many from the West and South as from its own State, Massachusetts. The Lawrenceville school, though very new, had seventeen States represented on its roll.

We find that a Western academy never draws from the East; seldom from any other State than the one in which it is located; while each State sends East more students than it draws to its own academies from all other States. What is the meaning of this? Does it mean that students are sent East simply because it is East? Would it be natural to send boys, at great expense, ten to fifteen hundred miles from home and home influences at an age when their characters are most susceptible unless they were to receive superior intellectual training? Is it

because of the reputation which long existence has given to the famous fitting-schools? Then why should Adams Academy in less than seven years from its beginning draw to it a majority of its students from the West? The expense alone makes the number much smaller than it would otherwise be, especially of those who are to enter Eastern colleges.

Comparatively few Western young men enter Harvard or Johns Hopkins, simply because they are not properly fitted.

A Yale man informed the writer that a chief obstacle to progress in the freshman year there was the necessity of putting together students so unequally prepared. The Western boy is almost universally at a disadvantage.

On the other hand, catalogues of the best normal schools in the East show that they have few Western students. The celebrated Bridgewater Normal had, out of an attendance of three hundred and seventy, but two from any State west of New York. The normal schools of the West have been brought to a high grade, so that there is no occasion for a long journey. Is this not evidence that whenever the youth can get as good a "fit" in the West as in the East they will remain at home?

"Within two years I have noted eight colleges or universities in prospect founded or revived in the South alone. But I know of only one or two fitting-schools of high grade established during the same period."[1]

Had the writer of the above looked at the West, he could have spoken more strongly still. While in some parts of the country the high school provides a course of study for prospective college students, in the West such is not generally the case. One thing is certain: to depend, in the West, upon our high schools for college preparation means years of poor scholarship and a small number of college students.

The work of the state schools must here, as elsewhere, be supplemented by private schools sustained by the generosity of those who are anxious to place the youth where there shall always be the best moral and religious influences as well as high intellectual training.

The efficiency of our Eastern public schools is unquestioned, and yet the private schools find abundant support. Much more, then, is the West in need of good academies.

[1] The Atlantic Monthly, December, 1885, p. 739.

The writer would be clearly understood to mean, not that there is need of *more* academies, but what is needed is at least *one* thoroughly equipped fitting-school. As to numbers we can compare with any country.

Missouri alone boasts of four universities, twenty-seven colleges, three state normal schools, and seventy-eight academies, besides the preparatory department attached to nearly every college. On a somewhat careful estimate, we conclude that the students in the academies alone make a grand total of eleven thousand, six hundred. Add to this number those in attendance at the normal schools, colleges, and universities, and there are to-day in Missouri attending schools, outside of the public schools of the State, not less than fifteen thousand young people. Of this number less than two hundred annually graduate from all the colleges of the State. Perhaps as many more continue their studies in Eastern academies and colleges.

While it is true that most of the Western colleges depend upon their preparatory departments for their college students, yet in one university of the State, which has in its preparatory department three hundred and forty-eight, there are in the collegiate department but thirty-six. In another university having an attendance of four hundred and thirteen, there is no classification even.

In Colorado, a university having three hundred and seven enrolled, numbers in the college of liberal arts, twenty. Another in a southwestern State has, in the college department, *five* out of a total attendance of three hundred and forty-four. The list might be greatly extended. By this showing one is led to suggest that possibly the colleges themselves might be lessened in number and the people suffer no real loss.

A Western college may mean a school managed and taught by a single family. Think of a college which has as its president and business manager, the husband; as chairman of the faculty, the wife; and as instructors, the two daughters. This family, with the help of one male teacher, compose the sum total of a live Western college. The same family previously founded a university, which, of course, died when they withdrew.

Having shown, as we think, that the preparatory department of a college cannot give the best preparation, we turn to some additional reasons for establishing a real fitting-school. Much train-

ing not appropriate to colleges belongs naturally to academies. The four years there spent are perhaps more valuable in forming correct manners and habits than any subsequent period. A boy enters an academy fresh from the restraining influences of a home. He becomes, to a great degree, his own master. The habits of thought and life which are to enter into his permanent character are largely shaped by his surroundings. Not only must evil influences be as few as possible, but there must also be present positively good influences, and more important still, there must be a wholesome restraint put upon him — something which, for a time, stands between the complete control of the parent and the absolute freedom of the college. The daily life of the college student is but little known either to the faculty or to the parent. This is necessarily so. He is a young man able to look out for himself; at least too mature to consent to be watched by others.

The boy, while preparing for college, needs, on the contrary, to have his daily life known. He should be made not only to study enough, but in the right way. It should be seen to that his habits are good, that his evening hours are spent in his room. In fact the most important charge is to care for him outside of the class-room. There is but one way to do this, namely: he must be under the supervision of officers until he has learned to use freedom aright. The Lawrenceville School, in New Jersey, has carried out this idea so far as practically to continue the home restraints over its pupils until, by gradual steps, they are found to be capable of self government. Such a restraint is impractical ble in connection with a college — the very presence of those who are at complete liberty presenting a serious obstacle. An academy, when alone, is supreme, and its laws then seem reasonable and can be enforced as strictly as college laws.

It is a noticeable fact that in the West, not the colleges, but the academies, poor as they are, draw the great mass of students. Probably for the reason that the country boy is not made conscious of his inferiority.

In a country like America, nothing is more important than to prepare young men for citizenship. One of the best helps towards this is early to teach boys to take an active interest in the life about them. When college and preparatory students are intimately associated, the college students inevitably take the leadership, but if the academy is alone there must be developed from

its own members the originators of every enterprise. Academies thus tend early to develop individual responsibility and to bring out the natural leaders. Moreover, this is continued into college life in the field of scholarship, for though a boy ranks first in his class in the academy, yet, in the college, this reputation must meet in contest with reputations gained by others in their academies, and a zeal is awakened for college honors. There is perhaps no one thing which, to a greater degree, brings faithful, earnest work into the Eastern college than this desire to have the honors of the academy become also the honors of the college. A teacher will give his best thoughts to his special line, and an academy gets the most valuable service when it demands from its teachers all the talent at their command. An academy in the West doing first grade work would speedily gain a national reputation. Graduates from it would bring it into prominence as soon as they were examined to enter colleges having the highest standard. An academy which afforded facilities for fitting equal to the best New England schools would rally to its support the intelligent element of the West, and, in the opinion of the writer, its growth and prosperity would be as rapid as is safe.

The Andover or Exeter man feels as proud of his academy in after years as of his college, and rightly so, for these schools depend upon no one man, but represent the wisdom and experience of the best masters through a long series of years. What they have learned by experience they are ready to bequeath to the West, and we, taking advantage of these excellent models, can build with the thrift of a new country. An Exeter or Andover in this section would give the cause of learning an impetus which ten new universities could not equal.

That there is a growing demand for such an institution among students desiring a college preparation is evident by the preference already given to those of the higher grade. Then, too, the number of young people fitting for college is more than four times greater than it was ten years ago. People now understand, to a degree, the difference between a good and a poor school; between scholarly training and the haphazard work of the teacher who professes to be master of all known branches. Yearly the number of those going East to prepare for college increases. From the senior class of a small preparatory school known to the writer not less than two go each year to complete their preparation in an Eastern academy.

In no part of our country do the young appreciate advantages more. They are full of the vigor incident to a new region; they are accustomed to struggle; they are brave and can endure. They feel the need of a disciplined mind, yet hundreds are annually obliged to take an inferior training because they cannot meet the expense of long travel and high priced board.

Fifteen years ago few colleges here required more than two years' preparation, many only one. Now the majority require two years and a large number three. But the most encouraging feature, from the standpoint of the educator, is the fact that there is a desire on the part of the students for even four years.

There is no question about the need. It is a pressing necessity. There is no question about the profitable work to be done. Would some large hearted philanthropist furnish the means with which to amply endow the chairs of four or five teachers, all else would be readily supplied and he would do more to lift the West into broad scholarship and manly culture than could be done in any other way. The best teachers in the country would undertake to manage such a school. Men of reputation would be glad to associate themselves with a young school which was thus supported, for there would be the assured opportunity of weaving into the educational influences of the great West an undying name. What Dr. Taylor was to Andover, some teacher can be to the future academy west of the Mississippi.

Men are founding colleges and universities on every hand. Let one fitting-school here in this vast region receive the earnest thought and generous help of some of these good men, and thousands of Western youth will be trained to greater manliness and broader views; will be better fitted for wise leadership in this Republic. An academy of this character must, at first, be content with small numbers; its exclusive work must be to prepare for the higher education. In the years to come its numbers will be ample, and its work will be endorsed by all who believe in a liberal education.

Whatever statements are made in this article with seeming disparagement of the West will, we trust, be received in the spirit which prompts them. Sixteen years' residence and work in the field gives the writer the privilege of speaking the facts. We have agreed too well in the past. It will be a good thing to differ if, by so doing, we shall secure the best in the end.

PHOTOGRAPHY.

BY C. F. CREHORE, M.D.

HOWEVER perfect a language may be, it will always be found inadequate to convey an accurate transcript of visual impressions. Hence the universal practice of attempting to render such by imitative art, at the first through fabrication of models, and later by means of graphic representation of the object to be described.

The great defect in this process is that the artist is apt to represent that which he thinks he sees rather than what he actually does see. In other words, we have offered to us a man's notion of the reality for the reality itself. To limit the source of error owing to this personal element, it has been found necessary to make use of mechanical, or rather optical, contrivances like the camera lucida or the camera obscura.

A great advance has been made within the last half century, by which the luminous image in the latter instrument can be fixed and retained by chemical methods. It might at first seem that by means of photography all of the errors due to personality in recording the appearance of objects were to be done away with. This is, however, not strictly so. Two photographers using the same apparatus and appliances, under like conditions, may secure negatives of a given object, as a house, yet their idiosyncrasies in manipulation will lead to marked divergence in results. This divergency, however, will be less than if they executed the work in crayon or color.

Certain fixed limitations, notably in rendering the true visual value of colors, hamper the effectiveness of photography; but being known, they can be allowed for in studying from photographic representation, and the advance in the practice of the art is gradually rendering them less important. Plates sensitive to all the rays of the spectrum are now prepared, and give in monochrome very nearly the true visual value of colors thus translated. It is as yet uncertain whether colors can be reproduced photographically. The problem is very different from that of giving them true visual value in monochrome.

While, as has been said, the photograph is not entirely free from the personal influence of the operator, it is generally more easy to detect that influence than it is the error impressed upon a drawing by the personal mental bias of the artist, and is hence, so to speak, more truthful. Moreover, a well made photograph will bear magnifying many times its diameter and thus settle questions for which a drawing would be useless. An artist sees in the distance what seems to be a man, and with a few touches imitates his idea of its appearance; the photographer brings home his plate, and with a lens discovers that the object is an ornamental hitching post.

The sensitiveness of the best plates is many times greater than that of the retina, and many objects invisible to the eye, as stars of lesser magnitudes, can be registered upon them.

The element of time comes in here. The plate will receive an impression in a shorter time than the eye. A photographic "exposing shutter" that remains open for too brief an interval to permit the eye to distinguish objects through it will nevertheless afford time for an impression to be made upon the plate. Hence, the well known use to which photography has been applied in the study of the details of motion in various forms, even to obtaining a view of the missile leaving the muzzle of the gun.

In every field of scientific inquiry, registration by photography is aiding, if not superseding, that by the brush or crayon.

The telescope and microscrope by it give direct views of the objects in their fields upon enduring plates. The geologist, the naturalist, the geographer, and ethnologist make use of it.

It seems eminently proper that the teaching of such a universally applied art should have a place in our school courses.

Although the chemics or physics of its reactions are not well understood, yet the technical procedures are simple and its general principles readily comprehended. Although perhaps unnecessary, a brief statement of the general facts may not be out of place.

Certain metallic salts, notably those of silver, when exposed to light in combination with organic matter, are reduced to the metallic state in the form of a black amorphous deposit. Saturate a piece of sized paper with a solution of common salt and dry it. Then treat it in the same way with a solution of silver nitrate. A double decomposition ensues, and an insoluble silver chloride remains entangled in the fabric. Place this in the sunlight under a negative which admits the light to pass in varying degrees of

intensity. It will be found that the reduction goes on proportionately to the amount of light admitted, and that the darkest portions are those where the negative had the least density; that the result is a complement to the deposit in the negative. This is the nut of photographic silver printing.

The same phenomena would take place were the paper exposed to the luminous image in the camera obscura, but the reduction would be very slow, and hence a modification of the process has been found. Before describing this, let me say that the silver print is kept from being further acted upon by light by the simple process of subjecting it to the action of a solvent which takes up and permits the washing out of the unacted upon silver salt, while it does not readily affect the metallic deposit. Hyposulphite of soda is commonly used for this purpose and the operation is termed "fixing." All photographic processes require an analagous treatment.

For taking negatives in the camera, the property which some reducing agents have, of acting rapidly upon silver salts exposed, in combination with organic matter to the light, is taken advantage of. To take one example: the plate of glass is coated with a solution of gelatine holding a proportion of a silver bromide. A brief exposure of this to light in the camera in some way predisposes the salt to rapid reduction by the action of pyrogallol in the presence of an alkali. The portions exposed to the most light in the luminous image of the camera, suffer the most rapid reduction and are correspondingly the more dense or opaque. This reduction is technically called development. Thus the picture is a reverse of the distribution of light and shade in the camera, and is termed a "negative." When used in printing, as we have seen, it permits the action of the light through the less dense portions or shadows, and the print corresponds with the subject, and is called a "positive."

While proficiency in the use of this art can only be acquired by habitude, the technique is so simple and there are so many of the requisites to be obtained ready prepared, that a very young child can undertake it with fair prospects of success, probably greater than would be attained in learning to draw simple objects with the crayon. It must not be inferred from this comparison that the writer would have the study of photography supersede that of freehand drawing. On the contrary he would have both taught, and they are both essential to a complete scientific education.

HISTORIC ILLUSTRATIONS OF SUPERIOR TEACHING.

IV.

BY J. A. REINHART, PH.D., PATERSON, NEW JERSEY.

WHERE THE INSTRUCTOR SHALL BEGIN.

Socrates, and since him Arcesilaus, made first their scholars speak and then spoke to them. — *Montaigne*, quoted by R. H. Quick, Educational Reformers, p. 30.

COMMENTARY.

THIS implies that Socrates thought the particular subject-matter of instruction should be determined by the learner and not by the instructor. Not, indeed, that the student should mark out beforehand the course of inquiry and discussion, for this large view and far-sighted adaptation of parts to whole is the exclusive province of the instructor. What is here marked out in the didactic method of Socrates is that instruction rightly starts with some thought or proposition formulated by the pupil. Every act of teaching has its beginning, and the initiatory stage of instruction must logically connect itself with some antecedent experience of the learner. What the first and the successive steps of teaching shall be can be determined only by some revelation of the mind of the learner. "Speak, that I may see thee. Language most shows a man. No glass renders a man's form or likeness so true as his speech." *Oratio vultus animi est.* Speech is the mirror of the soul.

The mental status of the learner determines the subject-matter of instruction.

Oratio imago animi.

Where shall I begin? In what shall I instruct my pupils first? How much of the particular subject which I am to teach shall I assume as known by my students? These are some of the most important questions which the instructor can ask himself. It is easy to see, however, that it is not so important to begin with that which is systematically first, but as that which is logically clear to the learner, level with his powers of comprehension, and interpretable by his past experiences. It is also important to know from what

The starting-point is not that which is systematically first, but that which is methodically first.

point of view the learner's interest in the subject originates. Hence the pedagogical importance of the maxim: "Speak, that I may see thee." Speak, that I may know how you regard my subject. Answer me, that I may see your mental status relative to this discussion. Interrogate me, that I may see the possible avenues to your intellect, feeling, and will. For a practical example of this doctrine, we may cite Professor Payne's account of Jacotot's method of lecturing: —

Illustrated by Jacotot's style of teaching.

"His style of teaching, as a professor, was striking and original. Instead of pouring forth a flood of information on the subject under attention from his own ample stores, explaining everything, and thus too frequently superseding, in a great degree, the pupil's own investigation of it, Jacotot, after a simple statement of the object of the lesson, with its leading divisions, boldly started it as a quarry for the class to hunt down, and invited every member to take part in the chase. All were at liberty to raise questions, make objections, and suggest answers; to ask for facts as the basis of arguments; to repudiate mere didactic authority. During the discussion, the teacher confined himself to asking questions, to suggesting now and then a fresh scent, to requiring clear statements and mutual courtesy; but of teaching, in the popular sense of the term, as consisting in the authoritative communication of knowledge, there was little or none. His object throughout was to excite, maintain, and direct the intellectual energies of his pupils; to train them to think. The lesson was concluded by his summing up the arguments that had been adduced and stating clearly the results obtained." [1]

The master and the learner must view the lesson from the same standpoint.

It is evident that such teaching as this of Jacotot taxes the highest resources of the instructor; that it necessitates great readiness of teaching faculty and skill. At the same time, however, it exemplifies the principle that the instructor should be conscious of the learner's consciousness, and further, this one: that both scholar and master (the latter's superior and enlarged experience to the contrary notwithstanding) must attack the lesson from the same standpoint.

When Socrates made first his pupils speak and then spoke to them, both master and learner partook of the same experience

[1] Payne's Lectures on Science and Art of Education, p. 79.

of thinking; this arduous exercise of the mind was the common experience of both teacher and scholar. They were joined in a common pursuit while the lesson was proceeding. Not only does Socrates stimulate Crito, but he energizes his own soul: —

Thinking the common experience of master and scholar.

Socrates. — This is what I want to consider with your help, Crito: whether, under my present circumstances, the argument appears to be in any way different, and is to be allowed or disallowed. . . . I ask you whether I was right in maintaining this?

Crito. — Certainly.

Socrates. — The good are to be regarded, and not the bad?

Crito. — Yes.

Socrates. — And the opinions of the wise are good, and the opinions of the unwise are evil?

Crito. — Certainly.[2]

An additional illustration may be taken from Plato's Gorgias, that dialogue of "passionate moral vehemence" in which many pedagogic virtues are "writ large":[3]

Socrates. — And now, which will you do, ask or answer?

Polus. — I will ask, and do you answer me, Socrates, the same question which Gorgias, as you suppose, is unable to answer: What is rhetoric?

Socrates. — Do you mean what sort of an art?

Polus. — Yes.

Socrates. — Not an art at all in my opinion, if I am to tell you the truth, Polus.

Polus. — Then what, in your opinion, is rhetoric?

Socrates. — A thing of which, as I was lately reading in a book of yours, you say you have made an art.

Polus. — What thing?

Socrates. — I should say a sort of experience.

Polus. — Does rhetoric seem to you to be an experience?

Socrates. — That is my view, if that is yours.

Polus. — An experience in what?

Socrates. — An experience in producing a sort of delight and gratification.

There are at least two important principles which we may con-

[2] Jowett's Translation Plato's Dialogues, i, p. 387.

[3] Jowett, ii, p. 332.

nect with this teaching: first, that in the very act of speech, in the attempt to symbolize our thought, we have an added consciousness of the thought itself. For, as Sir William Hamilton observes, *speech is itself an analytic process.*[4] The learner in the act of speech extricates some one impression, idea, or thought, or set of impressions, ideas, or thoughts, and *relates* them in a proposition, thus performing an act of comparison or thinking. Second, the mutual pursuit of knowledge by the master and scholar determines the learner to higher activity than the passive reception of a prelection from the teacher. On the reflex effect of the communication of knowledge on the mind, Hamilton has some most excellent and educationally important remarks. "The communication of thought," says he, "is an important mean towards the perfecting of knowledge in the mind of the communicator," and "the doctrine of this reflex effect upon the mind is one of high importance, but one which has in modern times unfortunately been almost wholly overlooked." [5] To this purport he quotes Plato, Aristotle, and Seneca, as well as many moderns. "It is maintained by Vives that we profit more by silent meditation than by dispute. This is not true. For as fire is elicited by the collision of stones, so truth is elicited by the collision of minds." — (*Scaliger.*)

Speech an analytic process.

Mutual conference secures a higher order of activity.

It is easy to see how the ancients should appreciate more clearly and apply this principle more steadfastly than the moderns: books were less used, and real teaching power was in greater demand; poor teaching power could less successfully hide behind good text-books. And perhaps we lack somewhat of the noble spirit of Socrates and his time, and need to decline from the place of learned authority, assuming rather to be the allies, associates, and partners of our pupils in the investigation of truth. For can we not appropriate Mr. Matthew Arnold's question to a narrower field and with him ask: "Can it be denied that to live in a society of equals tends in general to make a man's spirit expand and his faculties work easily and actively, while to live in a society of superiors, although it may occasionally be a very good discipline, yet in general tends to tame the spirits and to make the play of the faculties less secure and active?" [6]

The learned authority of the teacher against the progress of the learner.

Obest plerumque iis qui discere volunt auctoritas eorum qui docent. — *Cicero.*

[4] Logic, lecture xxxv, p. 481.

[5] Logic, lecture xxxv, p. 479.

[6] Popular Education in France, Introduction, p. clx.

THE SCHOOLS OF DENVER, COLORADO.

IT may well be said of the city of Denver that it is "beautiful for situation." Located upon the banks of the South Platte, with an elevation of more than five thousand feet above the sea, at the top of a long, steadily inclined plane reaching from the base of the Rocky Mountains to the Missouri River at Omaha, with a mild climate and wonderfully dry air, but little can be desired additional as to its location and surroundings.

Its population has increased by a steady and healthful growth and is of the very best quality, consisting largely of native Americans from the Middle States and the East. It is the capital of the State, and the new capitol building, when completed, will be one of the finest in the nation. Its public buildings, business blocks, churches, and school-houses are of the highest order. Its streets are broad and well laid out. With an ample supply of water from the mountains beyond, streams are constantly flowing through the principal streets of the city.

Its system of public schools is one of the very best, and presents certain points of superiority well worth the attention of educators in all parts of the country. The schools are under the supervision of a board of education, consisting of six gentlemen, with the superintendent. Two members of this board are chosen each year for a term of three years. It is, therefore, a permanent body. The election of members of the school board is a separate election on a specified day, when the citizens come to the voting places to vote only for these two members of the board.

No other officers being elected at that time, this takes the election of the board entirely out of the realm of politics. The board is divided into standing committees, but two members on each committee. These standing committees are as follows: —

1. Teachers and textbooks, and German.
2. High school and libraries.
3. Buildings and grounds.
4. Finance.
5. Supplies.

The superintendent has the entire confidence of the school board, and their work is always in perfect harmony. The same

agreeable relations are found to exist between the superintendent and the board and the teachers throughout the city. The selection of teachers is one of the most important duties of the superintendent and school board. In some Eastern cities, possibly elsewhere, it is the favorite thought of the people that the high school is expressly designed to furnish teachers for the public schools of the city. This is not the case in Denver. The writer of this article has been informed that there is scarcely a normal school north of Mason and Dixon's line that has not furnished one or more teachers to the city of Denver.

It is the custom of the city to select the best teachers which it can find, regardless of the city, State, or section where they are to be found. Teachers are now in the employ of the city of Denver, from various colleges in the East and West, from the Massachusetts Institute of Technology, and other institutions of the same kind. In fact, it seems to be the ambition of the superintendent and the board of education to secure the best teachers possible to fill vacancies in all grades of their schools.

The system of examination of teachers is somewhat peculiar. A special examination of candidates is held, conducted by the superintendent and board, when written answers to questions and topics are given upon the various branches of study, and these examination papers are marked on the scale of 100. Subsequent to the written examination, each candidate is passed into a private room and questioned by all the members of the board, including the superintendent. These questions are not upon school subjects particularly, but upon general matters, the design being to elicit some indications of the capacity, ability, and characteristics of the candidate. Each member of the board marks this portion of the examination, which, in the final summation, is considered of equal importance with the entire examination upon points of scholarship. The examination completed, the teachers who are approved are placed in the order of their rank; the first vacancy takes the first teacher in order, the second vacancy takes the next, and so on. This method precludes all favoritism.

When a teacher is once in the employ of the city, his interests, as well as the interests of the city, are conscientiously looked after. If a teacher would evidently be more successful in another grade of school, higher or lower, the change is made by mutual consent. The salaries of primary, intermediate, and grammar

school teachers are all upon one grade, with an increase each year of service up to a certain limit.

One of the most noticeable features of the school system of this city is the excellent character of the school-houses. A description of the new high school building will be found at the close of this article. It is unquestionably one of the finest high school buildings in the country. It should not escape the observation of the reader that the first floor of one entire wing of this immense building is devoted to a public library for the city. The advantages of having a public city library within the walls of a high school building are apparent, and it is hoped this custom, so auspiciously inaugurated by Denver, will be followed by other cities.

Every school-house but one has been built under the direction of the present superintendent of schools, Aaron Gove, who for the current year has been honored by election to the presidency of the National Educational Association. Among the grammar schools of distinguished merit may be mentioned the Whittier School, the Gilpin School, the Emerson School, and the Longfellow School. The Whittier School building is a modification of the Gilpin School, each having six rooms on the first floor and six on the second floor. Each room has separate and open clothes closets, one for the boys and one for the girls. The Whittier School building is 104 feet deep, with a frontage of 147 feet. The Gilpin School is about 100x140 feet. These twelve-room buildings are models in many respects. The Whittier School has two broad staircases and four wide corridors, with four sets of double doors for exit. In every school-room which I entered throughout the city the light comes from windows on one side of the room, and that over the pupil's left shoulder.

The eight-room buildings (four rooms on each floor of the two story building) are also subject to certain peculiarities. Of these buildings, the Emerson School is the best sample. The light comes over the pupil's left shoulder; the rooms are large and airy; the entrances and exits ample and easy; the staircases broad and quite sufficient for all purposes. Indeed, it is believed that all the pupils in any school-house can be sent from their seats into the street, quietly and in good order, within the limit of two minutes. The heating and ventilation of these buildings is something remarkable. For obvious reasons it cannot be described here.

This brief notice is prepared by a New England teacher, after a visit to these schools under favorable circumstances, and is given almost entirely from memory. It is believed, however, that it contains no serious errors. The course of study in these schools is of the very best, and altogether, the writer has seen nowhere schools of a city which have appeared to him to be superior to those of the city of Denver.

The Denver High School occupies one entire block in the city; the blocks are 400x270 feet.

One wing of the present building was commenced in 1881. The entire structure will be completed according to the contract, which is already signed, on the first day of August, 1889. The west wing has, under much embarrassment, been made to serve for accommodations for the High School. Upon the occupation of the new building the lower floor of the west wing will be devoted exclusively to a free public library; the second floor, 72x62 inside measurement, will constitute the assembly room for the school, and at the same time be an accommodation for popular lectures and similar literary exercises for the citizens. A large, convenient, and elegant entrance to the public library is on Ninteenth Street, connecting directly with the office of the library and reading and writing rooms, quite separate and distinct from all entrances to the school proper. This will make the library business an independent matter so far as the people desire to participate, while the students will also be enabled to profit by the convenience of approach.

In the basement of the building are the steam heating apparatus, janitor's and fireman's homes, armory and drill-room, young men's gymnasium, young women's gymnasium, natural history recitation rooms, store-rooms, lavatories, closets, etc. The girls enter the school through two entrances on the California Street or north side of the building; the boys through similar doors on the Stout Street or south side. These entrances open into a corridor 124x38 feet. The grand main entrance is on the north side in the centre, through a massive archway 24 feet wide, thence through three large doors into a vestibule 26x23 feet: from this vestibule open doors, on the one side to the rooms of the board of education, respectively 26x19 feet, 26x16 feet, and 16x16 feet, and on the other side to similar rooms pertaining to the direct administration of the High School. Connected with the rooms of the Board is a large fireproof vault for the preservation of the records of the schools.

From the vestibule one enters the main corridor: on the first floor are seven class-rooms, four of which are 28x32 and three are 27x37;

these seven rooms are designed for the ninth year pupils, better known as the fourth class in the High School. Opening from each room is a cloak-room for boys and a cloak-room for girls. The second story is reached by two flights of stairs, each seven feet wide. The corridor on this floor is of the same size as the one on the lower floor, except that it is in balcony form, that light may be admitted to the lower floor. This floor has four rooms, each 32x28, for the third class, three rooms, each 27x37, for the second class, and one room 54x36, with adjacent recitation rooms, for the first class.

The third floor, occupying only the centre of the building, has a corridor like that on the second floor, reached, in a like manner, by two flights of stairs. On this floor is a physical laboratory, 41x36; a chemical laboratory, 41x36, and a drawing and modeling room for art education, 84x36. Connected with these are storage and apparatus rooms of the most approved convenience. Above the laboratories is the observatory for the use of the classes in astronomy.

The house is finished in hard wood, polished; the windows are of plate glass; the lower corridor is paved with marble and the others with tiles.

The building is of brick with stone trimmings, and the roof is of slate. The grounds are laid off with stone walks, paved driveways lead to the main entrances, and the entire block is surrounded by a stone coping and broad flagstone walks. The total cost of all improvements, including all expenditures upon the walks and lawns, is to be about $300,000.

Perish with him the folly, that seeks through evil good!
Long live the generous purpose unstained with human blood.
Not the raid of midnight terror, but the thought which underlies;
Not the borderer's pride of daring, but the Christian's sacrifice.

— *Brown of Ossawatomie.*

Long live the good school! giving out year by year
Recruits to true manhood and womanhood dear;
Brave boys, modest maidens, in beauty sent forth,
The living epistles and proof of its worth.

— *Quaker Alumni.*

EDITORIAL.

THE campaign of the bishops of the Roman Catholic Church in the United States against the American common school is now thoroughly organized, and conducted with that unflinching purpose and astute policy that characterizes all the ecclesiastical operations of this very able fraternity. In the South, the Catholic priesthood is a unit in its opposition to the new public school, in Lousiana having succeeded almost in arresting its development outside New Orleans. It is at the bottom of the most malignant opposition to national aid, as this measure will give the Southern public school system a permanence and power which it deprecates. The German branch in the West, and the French-Canadian in the East, are doing their best, not only to gather the children in parochial schools, but to educate them entirely in these foreign languages. In every city in the Union of considerable importance, the parochial school is established, and, by political trading, in several cities supported illegally out of public funds. New England, which with her usual serene assurance has hitherto considered herself exempt, is rapidly becoming the battle-ground of the systems. Superintendent Patterson, of New Hampshire, reports that the attendance on public schools in the State is considerably reduced from this cause, and in the great manufacturing centres in Massachusetts and Connecticut, the work is pushed vigorously. Applications are already made in Lowell, Mass., to the public school authorities for the loan of school books; while school boards are accused of elbowing out historical text-books on sectarian grounds. The favorite policy of the Catholic contingent in school boards is to vote down the Bible and all religious exercises; whereupon the priesthood raise the cry of "godlessness" against the schools, made so by their own partisans if the charge is true. The objective point of all this is a grand final effort to break down the American unsectarian common school and substitute the European system of denominational schools subsidized, or public schools turned over, at certain hours, to the priesthood of different churches for religious instruction. A priest in Boston, a few Sundays ago, informed the mothers that unless the girls were sent to the sisters' schools they would be refused admission to the Sunday-school and the mothers themselves turned away from the con-

fessional. This is a little strong for Boston; but the bishops elsewhere have repeatedly given similar warnings. The Catholic press is a unit; and some of their journals rival the most unscrupulous and abusive political sheets in their tirade against the whole system of American public education.

This crusade has one object which it is well the American people should distinctly understand. It is the attempt of the bishops of one church to isolate the children and youth of probably ten millions of our people, from birth to maturity, in schools and societies under the absolute control of themselves. Unfortunately, the Catholic laity in this country is to some extent composed of the ignorant classes of immigrants, and lacks that representation of the superior class that in France and Italy is wresting the control of public education from the church. No movement in the country is so essentially unpatriotic and so dangerous as this. The labor organizations, the attempted separation of races in the South, are harmless compared with it. If it succeeds, another generation will behold one sixth of our population consolidated for all essential purposes under the absolute control of less than a hundred men, themselves sworn to implicit obedience in spiritual things to a foreign pontiff; the limits of this dominion over the conscience and life being determined by the pope himself.

Of course this conspiracy against American society and modern times will fail. *But such failures are only less dangerous to the country than success.* The failure of the slave aristocracy to capture the national government plunged the country in a revolution which will require a full half-century to outgrow. Already two great Catholic dioceses have been plunged in disastrous and shameful financial bankruptcy by the attempt of Archbishops Purcell of Cincinnati and Perché of New Orleans to appropriate denominational funds for this purpose; showing that no religious denomination can shoulder the common schooling of its children without financial collapse. A generation of indoctrination into such vital distrust of American ideas as this movement implies would leave a most mischievous party of opposition and sow the seeds of future troubles that no patriotic man likes to contemplate. So far, the Catholic lay population of this country is more indebted to the common school for its advancement in all ways than to any other influence. We mistake greatly if even they will finally be drafted into this crusade for mediæval reaction. What the American people will do "doth not yet appear;" but

when it does, it will be something decisive, unless the American people radically changes its nature and method of dealing with a recognized crisis in the national life.

AMONG the numerous summer schools which are coming to be very popular was the one held at the Harvard Gymnasium from July 11 to August 5. This class, which grew out of the demand for trained directors for gymnasiums all over the country, was conducted by Prof. D. A. Sargent, M.D., the well known director of the Hemenway Gymnasium at Harvard University.

Dr. Sargent has made the subject of physical culture a life work, and is an enthusiast in it. He is doing much, through his own influence and that of his trained teachers, to overcome the prejudice against physical development and to educate the public to a belief in its value and necessity.

There has been, and still is, a great tendency on the part of educators to sneer at physical culture. Unfortunately, the idea has come to be associated in the public mind with prize-fighters, ruffian boxers, and circus performers. Mention by way of argument that the noble Greeks in their grandest days devoted much time to physical development, and the answer will be: "Oh, that was different." These persons cannot see in physical training anything but preparation for the fighting arena.

That we have supposed the rigorous physical training of the Greeks to be merely the preparation for the battle-field is the fault of our interpretation, not of their philosophy. Plato, in his Republic, speaks strongly for physical training as a factor in the success of any nation. What did Plato mean? We think of him usually as dealing with the mind rather than with the body. Has Plato suddenly grown material, or is this rather the expression of Plato's knowledge and appreciation of the subtle connection between the brain and the body, which just now philosophers are coming again to understand and preach?

After the fall of Greece and Rome and the world sank into intellectual darkness, the monks, who controlled all things spiritual, mental, and physical, taught that the body was a vile, debasing thing, a mere clog to spiritual growth, a thing to be despised and neglected. Here came the first idea of ignoring this mortal frame

of ours and looking upon it as an inferior adjunct worthy of no man's care, and indicative, when in its normal strength and healthful beauty, rather of intellectual inferiority that anything better.

It is a wonderful thing to watch the evolution of thought in a nation's history. Just now, thousands of years from that period when among the Greeks the entity of the brain and body power was felt and appreciated, we are again coming to an understanding of the old truth.

This understanding has come through necessity. In olden times, when each man was his own farmer and smith and builder and manufacturer, every part of his muscular nature had its share of exercise, and therefore its share of development.

But as our so-called civilization has advanced, there has come a constant tending towards individualization. The farmer now is merely a farmer, and very likely a specialist in that; the builder is not only nothing but a builder, but he devotes himself to one particular form of building, or one particular part.

Machinery, electricity, and steam come in to assist in this reducing of muscular exercise and development to a minimum, until now the effects are showing upon the strength and health of our people.

To-day from every side there comes a demand for something which shall give us back what we have lost; and that something is coming in the form of physical culture. It is at last being understood, even in this superficial, nervous age, that the old saying, *Mens sana in corpore sano*, was full of truth.

It is because of this recognized principle that a gymnasium is being placed in every first class educational institution, and the students are being held to their physical work as to their work in other departments.

Thus it is being recognized that the child who is to earn his living by his brain will accomplish it more easily, more happily, and more successfully if with his mental work he combines well directed physical exercise.

PERHAPS nothing can show the great interest which, at the present time, centres in educational matters, better than the large and enthusiastic meetings of teachers in general conventions during the past summer. The State conventions, in the various States where they were held, were unusually well attended and

the exercises were of an interesting character. The meeting of the American Institute of Instruction at Burlington, if not as large as some previous meetings, was yet characterized by great ability, breadth, and progress in the papers read. The County Institutes in many of the Western States were well attended, and the character of the instruction was undoubtedly of a higher order than has ever before been given. The summer schools for the study of methods of instruction and for the pursuit of special branches of study, such as were held at Martha's Vineyard, Amherst, Middlebury, Saratoga, Round Lake, Glens Falls, Asbury Park, Oswego, Niagara, Ann Arbor, Normal Park, and the like, were attended by more teachers than heretofore, and both in the zeal and earnestness of the students and the character and ability of the instructors are indicative of the growth of the educational sentiment and of the progress in the matter and manner of teaching which are such marked characteristics of the educational condition of our country at the present time. But it was left for the National Educational Association at Chicago to outdo in numbers any educational gathering ever held in this country or anywhere else. Nearly ten thousand persons came to Chicago and each paid his two dollar membership fee. The treasury of the Association received something over $20,000 in membership fees, life memberships, and life directorships. At the opening meeting on Tuesday evening more than sixteen thousand persons were present to listen to Thomas's Orchestra and the opening addresses. Overflow meetings were held in different places during the daytime. The department meetings were better attended and of a higher order than usual; some of them were of remarkable interest. The most important educational questions now before the American public were discussed in a vigorous, intelligent, and healthy manner. It must seem apparent to all thoughtful observers that our country is making rapid progress in educational matters. It is announced that the National Association will hold its next meeting in San Francisco.

THE educational world will regret to hear of the death of Mr. Dexter S. Stone, of the firm of Cowperthwait & Co., book publishers, in Philadelphia. Mr. Stone died last month in Nantucket from cancer in the stomach. A native of Rhode Island, he

pushed his way, despite many obstacles, through Brown University, where he was graduated in 1858. He was a warm personal friend of the late Dana P. Colburn, whom he aided materially in making those arithmetics which have made Mr. Colburn's name famous. In his connection with the house of Cowperthwait & Co. during many years, he has, by his urbanity of manner, his strong, vigorous intellect, and his high character, won hosts of friends wherever he was known. Few men in the country knew better than he what was needed in a text-book for our common schools. Few publishers had more accurate or reliable knowledge, or better taste concerning the best "make-up" for text-books. In respect to paper, style of type, illustrations, binding, and whatever is included in the qualities of a superior text-book, his taste and judgment were of the highest order. The mechanical execution of Monroe's new readers illustrates his judgment and taste in these respects. His death is a loss not only to the business community, but to the educational interests of our country.

THIS magazine desires to call the attention of the friends of education throughout the country to the fact that Colonel Homer B. Sprague, the well-known platform orator, is again in the lecture field. It is not often that we have the pleasure of mentioning a teacher as among the most polished, brilliant, and sensible orators of the day. But that community which is fortunate enough to secure in its lecture course such topics as "My Experiences in a Confederate Prison," "Riches," "Eloquence: Why and How," "Paradise Lost," "John Milton," "Shakespeare's Youth," "Shakespeare as a Man," "Shakespeare as an Author," "Shakespeare's Sword," or "Oliver Goldsmith," presented in the vigorous manner and the fine taste characteristic of Colonel Sprague's efforts, will receive no small benefit from listening to such great themes treated in such a masterly manner. It is a great gain to the educational classes to be able to commend to our intelligent communities so eminent an educator and so successful an orator.

FOREIGN NOTES.

Manual Training as a Branch of Popular Education in Belgium. — In all European countries instruction in manual work in the schools for the people is the leading educational topic. On the one hand it is advocated from a purely pedagogical standpoint; on the other, from its industrial bearings. Both positions were set forth clearly and impressively in a recent speech in the Belgian chamber of deputies, by M. Mallar, deputy from Verviers. The subject is one of such universal importance that I make no apology for reproducing here the chief passages of the address.

"Manual work," said M. Mallar, "exercises a direct influence, considered from the educational point of view. When the child fashions an object after a model, he compares, he corrects, he improves, he strives to reach perfection. He seeks to do well, to do better, and yet he is not wearied, so perfectly does this kind of occupation suit his instincts of movement and imitation. He views his work with profound attention, he seeks the easiest and most rapid processes. He classes and combines them. By handling the material he acquires a nice perception of form, of dimensions, of the relation of parts to each other and to the whole, of effects produced, and taste is kindled or refined. When in fine, the work is completed, the tools and the products are ranged in their place and in good condition. Order and neatness are also indispensable qualities. I have often heard persons deplore the contempt with which manual work is treated; the discredit with which it is viewed by many people. These feel themselves superior to the artisans because they live without the work of their hands, while those that live by it, regard themselves as its victims. They wish to free their children at the risk of making them unhappy copyists or miserable quill-drivers. The ideal in their eyes, to employ their own expression, is 'to get their children into an office.' Very well. In giving a suitable place to instruction in manual training, we react against these tendencies and prejudices; we raise the workman in his own estimation; better yet, we raise him in the esteem of others. We react against the abandonment of the workshop and the fields, against the illusion of the workmen who imagine that they secure the welfare of their children by placing in their hands the pen of the clerk instead of the tools which their fathers have handled. Thus without doubt the social equilibrium is better guarded.

"The pupil accustomed to work with material will often times find his aptitudes revealing or affirming themselves; he will realize better the rôle for which nature has destined him; he will find more easily his true vocation. This instruction will not replace either technical training or apprenticeship, but it will afford a foundation for them. In giving a child certain practical knowledge useful to all the world, we endow him with an incontestable superiority for acquiring the practical notions of a trade. We prepare him for apprenticeship and reduce its duration. . .

"Thus far I have spoken only of the children of artisans; nevertheless, the chief advantages of the training are for the children of the agricultural classes. It is safe to assume that this technical knowledge would prove most serviceable to those who live isolated in the country, and who, on account of the small work and slight repairs required every day, have neither the time nor the inclination to master the specialties of the town. They get along to-day fairly; they would get along much better.

"The Hon. M. d'Oultrement has set forth clearly in a report recently published, the utility of schools of domestic industry and economy. He recommends the establishment of such schools by localities or private individuals with subsidies from the state. Prior to the appearance of this report the honorable minister of foreign affairs, then governor of Hamaut, had established several such schools and had endeavored to interest the government in them. Without denying that it is desirable to create special schools of this character in certain localities, I would wish to have courses in domestic industry established in all primary schools for girls. In the superior grades it would suffice to devote a few hours a week to the subject. Needlework ought to be made a part of the programme. . . .

"Like the manual work for boys, these lessons given in suitable proportions would serve as a recreation and physical exercise for girls."

This discourse of M. Mallar's has drawn forth a response from the minister of public instruction which shows that manual training has already much recognition in the programme of the Belgian schools.

The minister calls attention to peculiar difficulties in the way of the complete organization of instruction in industrial training. Among these are the need of teachers prepared for the work, the choice of method and the financial resources. "I greatly desire," says the minister, "to aid in creating this training which will prepare, not directly for a profession or a set trade, but indirectly for all trades by the most complete general culture of the faculties. I am an advocate of this manual training as an effectual remedy for intellectual overpressure."

Among measures that have already been adopted for the furtherance of this work, are the courses in domestic economy in the normal schools,

which have been subjects of special investigation and supervision for the last two years, and with respect to which it was specially ordered in 1886 that the instruction should be "theoretic, intuitive, and practical;" courses of instruction in needlework conducted in the normal schools in the vacation of 1886, and attended by more than six hundred teachers, and the institution of a special diploma for needlework in the normal schools, and a certificate of qualification in the same for primary teachers. It is proposed in the near future to establish temporary courses of manual training in the normal schools, to be followed by the introduction of the branch in certain primary schools. The minister also recommends courses of practical instruction in household work in primary schools, in courses for adults, and in special schools. A. T. S.

CURRENT LITERATURE.

GEORGE MEREDITH'S novels are the food of the best portion of the novel-reading public now. And they are food. They do not deal with literary questions, but with life; and not with life in the simple, petty expressions of ordinary mortals, but with the elemental forces of life even in ordinary mortals. "The Ordeal of Richard Feverel" is undoubtedly full of an immense force and undaunted truth. It is not a book for the weak to read; but it is one which true men and women will read with much more than the ordinary novel-reader's interest. It is a man's book, say some of the critics. True, in one sense. It is also a book to be read by women who have to do with the training of young men; a book for teachers who are large-natured enough to get its good, and emphatically a book for the mothers of sons.

The "Spell of the Russian Writers," of which Mrs. Preston writes in the *Atlantic Monthly*, is upon everybody who keeps abreast of the literary current. Tolstoï's "My Confession" has just been published in America. Maurice Thompson makes his savage onslaughts on the Russian, and Mr. Howells insists that from the absolute simplicity and bare naturalism of the Russian world literature is to be renewed and revived. Haggard's "Allan Quartermain" follows his own impossible lead, and sells by the thousand to people who do not perceive any difference in quality between writers who interest them.

"Underwoods," by Robert Louis Stevenson, has just appeared. His "Child's Garden of Verses" is his only other book of poems. His

verse is full of the sweetness and strength found in his "Inland Voyage," and with none of the element which gave another sort of interest to "Dr. Jekyll." "In the States," a poem written when Mr. Stevenson was in San Francisco a few years ago, is very characteristic. Mr. Stevenson's present visit to America will, it is hoped, restore him to health. But no one will ever wish the Englishman to have as a poet any different feeling from the one expressed in the closing lines of "In the States:" —

> "Youth shall grow great and strong and free,
> But age must still decay;
> To-morrow for the States, — for me
> England and yesterday."

Mr. C. S. Hartmann follows the manner of Walt Whitman in his poetry. Whether or not one likes the absence of conventional artistic form, the beauty and intellectual fire of much of Hartmann's work must be admitted. Not a word of this "To Teachers" can be spared: —

"Have you said forever farewell to the dominions of Philistia? Does your way of teaching develop the body, the reason, morality? Can you speak of the victory of purity over the temptations of egoism? Are you able to be impartial? Are you neither a bigot nor an atheist?

"Have you a general idea about everything? Do you remember that notions about history and the capacity of solving mathematical problems are no necessities? Do you know something about the systems of macrocosm and microcosm? Are you a lover of the nature of man? Do you understand the poetry of nature and life, the beauty of art? Have you formed in your mind an idea of the laws, harmonies, mysteries of the universe? Have you thought of the eternity of molecules, of the destiny of the world?

"Have you studied the organism of man, the influence of maladies and nervousness? Have you considered that individuals form a nation, form a race?

"Do you comprehend the human soul? Are you familiar with the effects of enthusiasm, talent, genius? Do you know what passions, instincts, sentiments, impressions, are? Do you know something about the unconscious change of feelings? Are you really able to teach your pupils to become strong personalities, that they can bid defiance to all variations and influences of life, that they may trust their own forces and faculties, that they may be able to enjoy this world?

"Teachers, answer these questions! Young teachers, you must be able to answer every one of these, for death or life unto eternity, and in fast widening circles of the world, centre in these hundred human brains there that you have to educate!"

In the Men of Letters Series the "Life of Keats," by Sidney Colvin, is one of the books which could most ill be spared. Professor Colvin has given us a life which, while less rich and brilliant than Professor Dowden's "Shelley," is artistic, restrained yet full.

The "Story of Assyria" is Putnam's new volume in the Nations Series. It is by Madame Zénaïde A. Ragozin; and *The Critic* speaks of one of the best characteristics of the history in these happy words: "Here and there, touches of life which make these ancient men something more than terra cotta ghosts are shown in the pictures of the dogs and pets and even in the translations of their names."

Rev. Theodore Munger's "The Appeal to Life" is at once spiritual and practical. He understands that truth is not necessarily hidden, and in the "Appeal" he speaks as man to man. His literary manner is excellent because it is thoroughly unaffected, heartily natural. Houghton, Mifflin & Co. publish this volume of sermons.

The September Number of the Riverside Literature Series (published monthly at 15 cents a number, by Houghton, Mifflin & Co., Boston) contains four of John Burroughs's Essays or Stories about Birds and Bees, with an Introduction, recommending the use of Burroughs in the Sixth (fourth reader) Grade, by Mary E. Burt, of the Jones School, Chicago, Ill.

An Extra Number prepared by A. S. Roe, Principal of the High School at Worcester Mass., will also be published in September, containing programmes for the celebration of Authors' Birthdays.

CURRENT EDUCATIONAL LITERATURE.

Missionary Herald (August), "President Hopkins," with portrait: an editorial biographical article.

New Englander and Yale Review (August), "The American School of Classical Studies at Athens," by Thomas D. Seymour: an instructive and interesting comparison of the opportunities offered Grecian students now, and those of the time before the founding of the successful school of to-day.

Forum (August), "The Progress of Co-education," by Dr. C. F. Deems. "My own opinion is," says Dr. Deems, "that in the beginning of school life boys and girls should be educated together. There is a transition period when, perhaps, it would be best to educate them apart.

They come again to another season in life when co-education seems better for both sexes." He reviews briefly the history of co-education in this country, and says: "Plainly Boston University has thoroughly wiped out distinctions of sex, and has for its purpose not the educating of men and women, boys and girls, but rather the educating of human beings."

Asiatic Quarterly Review (July), "Indian University Education," by Sir William W. Hunter.

Mind (July), "Knowledge as Idealization," by Prof. J. Dewey.

Fortnightly Review (August), "Greater Greece and Its Education," by J. Theodore Bent.

Journal of Speculative Philosophy (October), "The Classification of Mathematical Sciences," by J. M. Long.

Journal of Speculative Philosophy (October), "The Concord School of Philosophy in 1887 — Course of Study in Aristotle and in Bibliography."

North American Review (August), "General Pope and the Public Schools," by Judge W. T. S. Kelley.

AMONG THE BOOKS.

SHELDONS' ELEMENTS OF ALGEBRA. New York and Chicago: Sheldon & Company. Pp. 297. 66 pages of answers to examples.

This book contains a treatment of all the subjects usually found in an elementary algebra. The first part of the book will be found to be entirely different in plan from other algebras, and its simplicity will commend itself to the best teachers. The author makes plain to the student that algebra is literal arithmetic, and that the processes of algebra are only the processes of arithmetic applied to symbols of general values. The book contains a large number of properly graded exercises, many of which are original and all of which have been tested in the school-room. The Sheldon Series is too well known to need an exhaustive description. This book will be published also with an Appendix, or part II (to be called Sheldons' Complete Algebra), which will contain more difficult test examples and an extension of some of the subjects treated herein.

HEALTH LESSONS. A Primary Book. By Jerome Walker, M.D. New York: D. Appleton & Co. Pp. 194.

The aim of this valuable little book is to teach health subjects to young children in a truthful and interesting way, and by somewhat different methods from those usually employed. The author has not given a treatise on anatomy, but has made the subject of health one of interest to the children, and has given, in a form simple enough for the little ones to understand, the principles on which good health is

based and the effects of bad habits. The book is highly commended to all parents as well as to the teachers throughout the country.

PRACTICAL RHETORIC AND COMPOSITION. By Albert N. Raub, A.M., PH.D., author of "Lessons in English," "Practical English Grammar," "Studies in English and American Literature," etc. Philadelphia: Raub & Co. 1887. Pp. 320. Price, $1.20.

A complete and practical discussion of capital letters, punctuation, letter-writing, style, and composition; with copious exercises in both criticism and construction. That many who have pursued the theoretical study of rhetoric have failed to make practical use of their knowledge is a fact to be deplored. It matters little how much theoretical discussion may be given to the subject of rhetoric; unless the student applies the principles of the science as he learns them, the results of the work will be small and unsatisfactory. In this work each topic or principal discussion is followed by copious exercises for practice. Criticisms of faulty expressions are required, as well as the construction of sentences, figures, etc., which makes a practical application of the principles stated. This work should receive the careful examination of all teachers of this important branch of study.

LITTLE POLLY BLATCHLEY. By Frances C. Sparhawk. Illustrated. Boston: D. Lothrop Company. Pp. 189. Price, $1.00.

The children of the present generation have great advantages over those of earlier times, not only as to educational methods and more numerous amusements, etc., but also in the numbers of really good, interesting, and profitable books at their command. Still it is necessary to cull from the vast amount of worse than worthless reading that which will tend to elevate, not degrade, while it amuses or instructs, the child. If the book be simply a story to please the little ones, it must be a story true to nature and told in a natural way. Incidents from another child's life are almost sure to satisfy the children's desires, and is one of the best ways in which to influence the little ones. The author of this book is particularly happy and successful in writing books for children on account of her natural and unaffected style. The incidents of the story itself are exceedingly true to life. The book will be found highly useful in all households containing children.

MONOGRAPHS ON EDUCATION. Boston: D. C. Heath & Co. Price, by mail, 25 cents.

The fifth book of this series is "The Study of Rhetoric in the College Course." By John F. Genung, PH.D. (Leipsic), professor in Amherst College.

DR. BREEN'S PRACTICE. By William D. Howells. Boston: Ticknor & Co. Pp. 272.

The "Ticknor Paper Series of Choice Reading" is issued weekly; single numbers, 50 cents; quarterly subscription, $6.50. The admirers of "The Rise of Silas Lapham," "A Modern Instance," etc., will hail with delight the chance of obtaining, at such a low price, another of Howells's works.

AFTER SCHOOL DAYS. A Story for Girls. By Christina Goodwin. Boston: D. Lothrop Company. Price, $1.00.

This story for girls has none of the feverish elements which characterize many works of fiction, but is bright, natural, and healthful. The story opens by showing the principal characters at the close of the school term. In the succeeding chapters are developed the different courses of life as

shaped by circumstances and inclination. Not only as a story is "After School Days" charming, for there is a strong moral fibre in it, and there are scattered through its pages apt suggestions as to the vital things of life which cannot but set readers to thinking.

PRIMARY PHENOMENAL ASTRONOMY FOR TEACHERS AND GENERAL READERS. By F. H. Bailey. 75 Hawley Street, Boston. 1886.

This little book of 96 pages in paper covers is a gem. It is full of aids in teaching the laws and facts of the solar system and of the stellar worlds. Every teacher of astronomy will find it of great use. Mr. Bailey's cosmosphere is a real invention, and will prove valuable to all in giving a clear conception of the principles and facts of astronomy.

RAPPORT SUR L'INSTRUCTION PUBLIQUE A L'EXPOSITION UNIVERSELLE DE LA NOUVELLE ORLEANS. 1884–85. Pp. 295. Paris: Librairie Chaix Rue Borgère, 20. Ch. Delagrave, éditeur. 1886.

This report in French of the New Orleans Exposition is made by B. Buisson to the minister of public instruction. It will greatly enlighten the educators of France upon the condition of school affairs in America.

FACTS AND FICTIONS OF MENTAL HEALING. By Charles M. Barrows. Boston: H. H. Carter & Karrick. Pp. 248. 1887.

This book speculates on the philosophy of mind-cure, or the effect of thought on disease. To the author, God is the life of the world, and vital force emanates from him. If we place ourselves in the stream of that force, good results; if we stem it with our own will, evil. In disease the patient is urged to *think* he is not sick. "Treating, as I understand it, is coming into such a state of mind that you *know* that there is no such thing as disease, and that consequently the patient is not sick. When you actually know this to be true, an influence emanates from you that heals your patient." The book is well written.

EDUCATIONAL MOSAICS. By General Thomas J. Morgan, Principal of the Rhode Island State Normal School. A choice collection from many writers (chiefly modern) of thoughts bearing on educational questions of the day. Boston: Silver, Rogers & Co., publishers. Price, $1.50.

This volume, compiled by General Morgan, is unlike anything hitherto published in pedagogical literature, so far as we know, and will occupy a distinctive and important place with teachers, educators, and all others interested in the best educational thought of the present as well as of former times.

It consists of selections on educational topics from the writings of more than two hundred authors, most of whom are modern. The book gives evidence of wide research, the selections are made with taste and good judgment, and to a great extent they bear directly upon the living educational questions of the day — very many of them being eminently practical. Others are particularly noticeable for literary merit or beauty of thought or sentiment. As a whole it may well be styled a "casket of jewels."

We know of nothing better to put into the hands of classes in normal and grammar schools for critical study and analysis and parsing. The sentiments which it contains would make a lasting impression upon young minds, arousing and stimulating aspirations after true culture.

It would also make for higher classes a capital supplementary reader, and many of the selections would be admirable for recitation.

Teachers' reading circles will find nowhere else, in so brief a compass, such a variety of valuable matter.

The volume is beautifully printed on the best quality of paper, is attractively bound, will prove an addition to any library, and is just the kind of a book that one likes to "take up" when greeted by a spare hour.

CHAUVENET'S TREATISE ON ELEMENTARY GEOMETRY, revised and abridged by W. E. Byerly, Professor of Mathematics in Harvard University. Philadelphia: J. B. Lippincott Company. 1887. Pp. 322. Price, $1.20.

This work aims to lead the student to reason for himself. Mathematical study should train the mind not to demonstrate a few set propositions, but to be able to grasp the principles which underlie all propositions; this Professor Byerly's revision does admirably. There are nine books, the first five devoted to plane, the others to solid, geometry. Teachers will find this book a good one to use in their classes.

CALAMITY JANE. A STORY OF THE BLACK HILLS. By Mrs. George E. Spencer. New York: Cassell & Co. Paper cover, 25 cents.

This interesting story of Western life is one of Cassell's Rainbow Series of original novels. The author gives a vivid description of certain phases of Western life that are little known or thought of in the older and more Eastern States. The disregard for law and personal rights and privileges in some of the rougher locations is strikingly illustrated.

DOROTHY THORN OF THORNTON. By Julian Warth. Boston: D. Lothrop Co. Price, $1.25.

The heroine of this story discovers by accident a new combination of chemicals, which is of great benefit in a certain manufacturing process. The author has evidently made a study of the social problems of the day, particularly those of labor and temperance. The result of this study is skilfully woven into this story to furnish the essential parts, but does not lessen the interest in the work as a novel. All who read this carefully and thoughtfully written book will testify to the impartial manner in which these important subjects are treated. Dorothy Thorn belongs to The Round World Series.

TICKNOR'S PAPER SERIES OF CHOICE READING. Issued weekly throughout the months of May, June, and July, containing thirteen numbers.

This series includes several of the most famous and successful of the novels of the past five years. Books like Guenn, The Story of a Country Town, The Story of Margaret Kent, etc., and brilliant new works like De Montauban's Cruise of a Woman Hater.

One of the new volumes of this series is Geraldine: A Souvenir of the St. Lawrence. It is said that this poem is likely to be as extensively read as Dr. Holland's Kattrina and Bitter Sweet or Owen Meredith's Lucile. *The Critic* gives it high praise: "Geraldine is higher in its stern lessons of duty, and stronger in its pure teachings of a gracious Christianity than Lucile, which is written from a worldly standpoint." If you wish to keep abreast with the times, be sure and read Geraldine.

The fourth volume of this series is A Reverend Idol, a delightful novel of the Massachusetts coast, thoughtful, original, and fascinating.

THE FORTUNES OF WORDS. LETTERS TO A LADY. By Federico Garlanda, PH.D., author of The Philosophy of Words. New York: A. Lovell & Co.

When The Philosophy of Words first appeared, the following notice of it appeared in this magazine: "Seldom have we taken up a book on language in which one becomes so soon or so deeply fascinated as in this beautiful work of Dr. Garlanda. When Trench published his little book on the study of words, every one at once was charmed with its power, and surprised at the interest it awakened; so of this book. What language is, whence our words come, their true meaning, the history there is in them, etc.,—all these and other topics interest and charm us." Dr. Garlanda, in his new work, "The Fortunes of Words," hardly needs further introduction to the teachers of the country, unless it be to say that the second surpasses in interest and worth the earlier work, if such a thing is possible.

ADVANCED GRAMMAR AND ELEMENTS OF RHETORIC. By Calvin Patterson, B.S., Superintendent of Public Instruction, Brooklyn, N. Y. New York and Chicago: Sheldon & Company. 1887.

Clear, accurate, and exhaustive, this advanced work by Mr. Patterson is worthy of careful examination by our teachers and school officers. The name of the author demands such an examination; the examination will demand the adoption, in all cases where such a textbook is needed.

HOME SANITATION. A MANUAL FOR HOUSEKEEPERS. By the Sanitary Science Club of the Association of Collegiate Alumnæ. Boston: Ticknor & Co. 1887. Pp. 80.

This excellent little treatise on heating, lighting, drainage, ventilation, etc., is prepared for the club, under direction of a committee, by Miss Ellen H. Richards and Miss Marion Talbot, editors.

It will be found very useful, well written, and scientific. It is well illustrated, and ought to be read by every housekeeper. It will pay. No family can afford to be without it.

THE FRANKLIN SQUARE SONG COLLECTION. No. 4. New York: Harper & Brothers. Paper, 50 cents; boards, 60 cents; cloth, $1.00. To be found at the Old Corner Bookstore, Damrell & Upham, Boston.

This song collection is devoted to school and home enjoyment. It contains such excellent music as Angel of Peace, Are there Tidings? Autumn Dreaming, Awake, My Soul! Battle Eve, Bring Flowers, Brookside, Canadian Boat Song, etc. etc. Two hundred favorite songs and hymns. This series of songbooks needs no recommendation.

MAGAZINES RECEIVED.

Lippincott's Monthly Magazine. J. B. Lippincott Co., Philadelphia. $3.00 a year; 25 cents a number. The "Red Mountain Mines" is the complete story in the September number, written by Lew Vanderpoole. An article on John Wilkes Booth is also of interest.

The North American Review. (Monthly.) 3 East Fourteenth Street, New York. 50 cents a single copy; $5.00 a year. Dr. McGlynn's article on "The New Know-nothingism and the Old," and Dr. Field's "Open Letter to Col. Robert G. Ingersoll," are of special appropriateness.

The Forum. 50 cents a number; $5.00 a year. The Forum Publishing Company, 97 Fifth Ave., New York. "The Return of the Republican Party," by Gov. Foraker, and "The Choice of an Occupation," by Dr. Hale are, among others, especially noticeable.

The Andover Review. (Monthly.) $4.00 a year. Houghton, Mifflin & Co., Boston. The two editorials in the August number are worthy of a careful reading at the present time.

Magazine of American History. Illustrated. Edited by Mrs. Martha J. Lamb, 30 Lafayette Place, New York. 50 cents a copy; $5.00 a year. Among the other articles of interest to all readers of history, we notice in particular Professor Thorpe's article on the "Origin of the Federal Constitution."

Treasure Trove. 25 Clinton Place, New York. $1.00 a year; single copies, 10 cents. One of the best, though one of the lowest priced, of the children's magazines.

Frank Leslie's Illustrated Sunday Magazine. Mrs. Frank Leslie, publisher. $2.50 a year. This magazine contains eighty pages of interesting Sunday reading.

The Quarterly Journal of Economics. 141 Franklin St., Boston. $2.00; 50 cents. The principal articles in the July number are "Deposits as Currency," "An Historical Study of Law's System, 2," and "Some Curious Phases of the Railway Question in Europe."

Political Science Quarterly. Ginn & Co., 743 Broadway, New York. Yearly subscription, $3.00; single numbers, 75 cents. "The Interstate Commerce Law," by Edwin R. A. Seligman, PH.D., is one of the most exhaustive articles on the subject that has appeared during the long controversy.

Scribner's Magazine. Price, 25 cents a copy; $3.00 a year. Published monthly with illustrations by Charles Scribner's Sons, New York. In the August number of this delightful magazine, we find the fifth article of "The Unpublished Letters of Thackeray," the monthly quota of "Seth's Brother's Wife," "The Instability of the Atmosphere," and other articles of value.

Civics. Published by the American Institute of Civics, 83 Cedar St., New York. $1.00 a year. The first number of this new magazine appeared in June, with Henry Randall Waite, PH.D., as its editor. If the articles in the first number are fair samples of what we are to find in it, the magazine will be of especial value in its line. "Methods of Instruction in Civics" (which has already appeared in EDUCATION), "Idleness a Crime," "A Course of Reading in Ethics and Governmental Power," are good subjects; Gen. Carrington and Professor Andrews of Brown are good names to be on the list of contributors.

Library Notes. Boston: Library Bureau. $1.00 a year. Edited by Melvil Dewey, Secretary American Library Association, and Professor of Library Economy in Columbia College.

Barnard's American Journal of Education. $4.00 a year. Published by Henry Barnard, LL.D., Hartford, Conn. The ten or a dozen articles in this excellent number are of very great value to any teacher. Send one dollar for it.

Harper's Monthly Magazine. Harper and Brothers, New York. 35 cents. $4.00 a year. The August number contains a very interesting sketch of "The Neighborhood of the International Park," with fifteen or more illustrations connected with that one article.

The Century Illustrated Magazine. (Monthly.) The Century Co., Union Square, New York. 35 cents a number, $4.00 a year. An article entitled "Snubbin' through Jersey," is worthy of mention as strikingly unique.

PAMPHLETS RECEIVED.

We have received the annual circular of the Wyman Institute at Upper Alton, Ill.

Such schools as the Wyman Institute have done much for the elevation of the best education and the dissemination of the broadest and wisest educational ideas through our country. Dr. Wyman is not only a successful teacher but a public benefactor.

The Iowa Historical Record, 1887. Genealogy of the Fenner Family. Nos. 1 and 2. By Rev. J. P. Root. Report of the Indian School Superintendent, 1886. Report of Indian School Superintendent, 1885. Annual Report of the Denver Chamber of Commerce and Board of Trade, 1885. The Argus Review. The Library Journal. Catalogue of the Library Bureau. Il Problema Dell' Educazione Religiosa. Papers of the American Historical Association, Vol. II, No. 2 and No. 3. A Vesper Service, No. 3 and 4. Revue Pedagogique, 1887. Technical Education in Industrial Pursuits. Address to the North Canterbury Educational Institute. Free Text-books and Supplies. The Sanitary Conditions and Necessities of Schoolhouses and School Life. No. 2. The Problem of Municipal Government in the United States. Historical Sketch of the Finances of Pennsylvania. Abstract from the Transactions of the Medical Society of New York.

VASSAR COLLEGE.